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THE Airman

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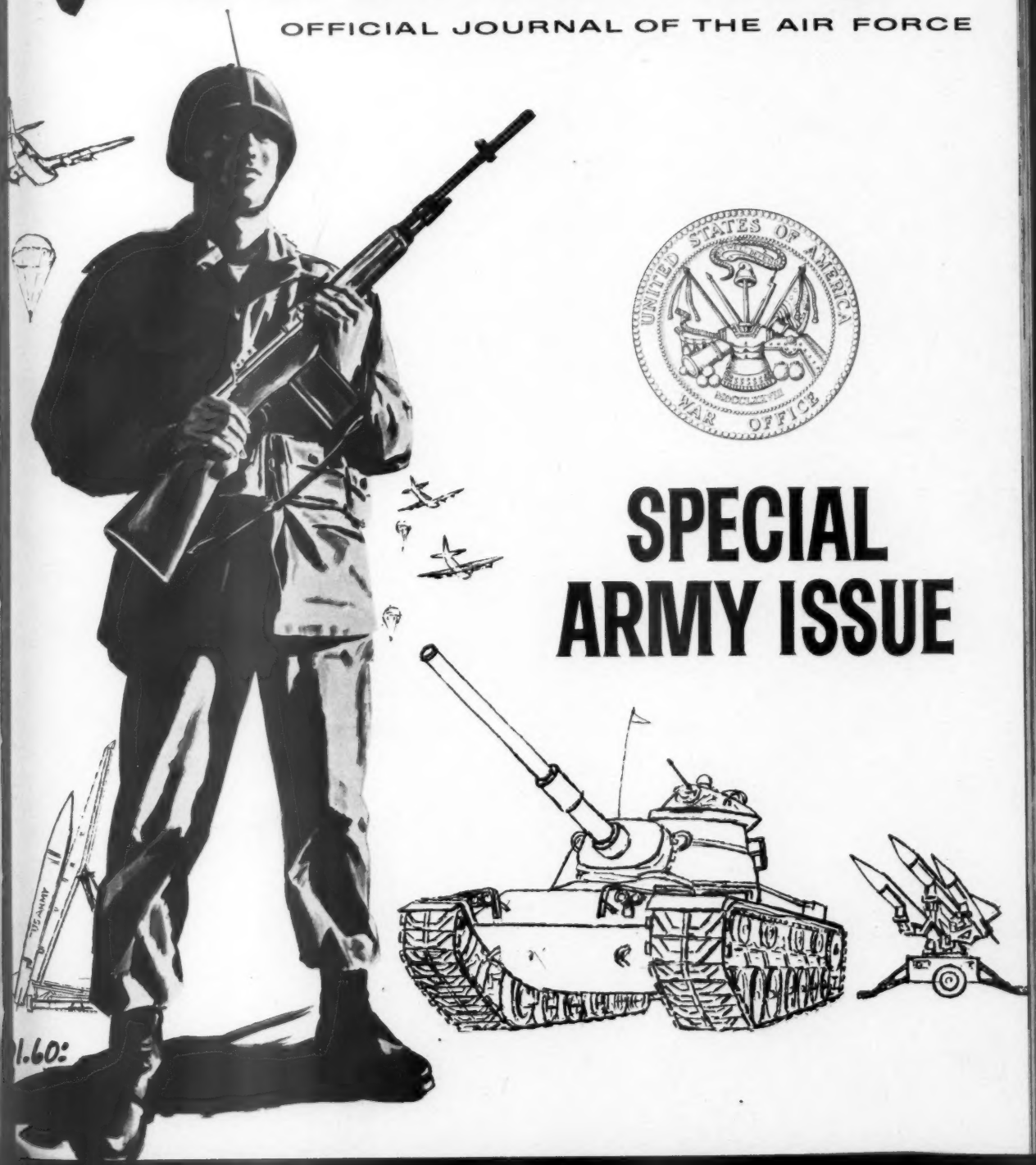

SPECIAL ARMY ISSUE

Honorable **ELVIS J. STAHR, Jr.**
Secretary of the Army

SECRETARY OF THE ARMY
WASHINGTON

The purpose of all the members of our Armed Forces is the same. In simplest terms, it is the preservation of the integrity of the Nation and the fundamental values and institutions of our enlightened civilization.

With the preservation of peace as a primary goal, the Military Services constitute a fighting team prepared successfully to wage any war on land, at sea, or in the air which might be thrust upon us. The complementary and interdependent nature of the several Services is axiomatic in modern warfare. Airmen, soldiers, sailors, and marines serve side-by-side around the globe in common dedication to the defense of freedom, each an indispensable element of that defense.

In the following pages distinguished military leaders will describe how the United States Army performs its mission of organizing, training, and equipping Army forces for the conduct of prompt and sustained combat operations on land -- specifically, to defeat enemy land forces and to seize, occupy, and defend land areas.

On behalf of the Department of the Army, I would like to express my appreciation to the Department of the Air Force for this opportunity to discuss in the columns of The Airman the vital part the Army plays as a member of our Defense Team.

Elvis J. Stahr, jr.
Secretary of the Army

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VOLUME V, Number 11 November 1961

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THE AIRMAN is primarily a medium for the exchange of ideas and information among Air Force personnel. Readers are encouraged to submit articles, short subjects, photographs, and artwork. All contributions will be given consideration; suggestions and criticisms are welcomed. Opinions expressed by individual contributors do not necessarily reflect the official viewpoint of the Department of the Air Force. All photographs are official USAF photos unless otherwise designated.

LETTERS TO THE EDITOR

Thank You

Sir: On behalf of the Civil Air Patrol members and the USAFmen who work with this fine organization, I would like to offer our thanks for your excellent article on CAP operations which appeared in the July issue.

Lt. Donald E. Davidson
Ellington AFB, Tex.

★ ★ ★

Almajcom

Sir: In the *You Ask It* column of the August issue, you have carried a statement which I believe to be partially incorrect. In answer to a question as to the authorization for sport-parachute clubs with USAF, you noted you could find no regulation which specifically sanctioned them. This much is true. However, a couple of years ago, an all major commands message was dispatched from USAF headquarters which gave local commanders the authority to approve or disapprove the formation of such clubs.

A1C Ken Sisler
Selfridge AFB, Mich.

● *Reader Sisler is correct. The message was numbered 160371 and dated February 1959.*

★ ★ ★

Disagrees

Sir: *We Will Hear Your Statement* (July '61) suggests that by increasing the required tours for nonrated officers from three to four years more of these officers will be encouraged to choose Air Force careers. I honestly believe the only result of such action would be a vast reduction in the number of incoming AFROTC graduates. In my opinion, most young Reserve officers are anxious to serve but are not seeking military careers. Such careers should be limited to only the most dedicated individuals and, by trying to force careers on the undedicated, we will only build a corps of unqualified, unhappy, and generally undesirable officers.

Lt. Bruce Haldeman
Davis-Monthan AFB, Ariz.

★ ★ ★

Corrections

Sir: In the second installment of your interesting article *He Started It* (August '61), the author states that "Jeffries . . . had a British flag ready.

(Continued on page 30)

★ ★ ★

All photos illustrating Army activities in this special issue are official U. S. Army photographs.

THE PRIMARY ROLE OF THE ARMY

by General GEORGE H. DECKER, Chief of Staff, U. S. Army

AS THE KEYSTONE OF ITS SECURITY, the United States maintains a tri-dimensional team—the Armed Forces of the nation—to further our national objectives of securing peace with justice among men and nations. As indispensable members of that team, soldiers of the United States Army—along with airmen, sailors, and marines—guard the heart and periphery of the Free World.

The primary role of the United States Army is to conduct prompt and sustained combat on land—to fight wherever and whenever called upon. In the face of the massive Communist threat, the Army must be prepared for successful operations covering a wide range of activity—from countering the tensions of cold-war tactics to hammering back the Communist aggression, whether it takes the form of guerrilla tactics or full-scale assault by organized armies. If any single word describes the many tasks the Army performs in accomplishing its mission, that word is *versatility*.

Army Activities

At present, our nation is faced with increasing world tensions. Cuba, Africa, Southeast Asia, and now Berlin are areas that require the utmost in vigilance and determination on the part of our nation and its Armed Forces in resisting the inroads of Communism. Here are only a few instances of Army activities that go to make up the Army's wide range of capabilities:

In Southeast Asia, a soldier of an allied force receives instruction in anti-guerrilla tactics from a member of a Military Assistance Advisory Group.

In Berlin a sentry patrols a border post.

In Korea a guard keeps watch over the Demilitarized Zone.

At Fort Bragg, N. C., Special Forces troopers develop skills in demolitions, communications, medical care, languages and cultures of diverse areas, so that they can organize, train, and direct operations of local guerrilla forces operating behind enemy lines in some future battle zone.

At Fort Campbell, Ky., the 101st Airborne Division, part of the Strategic Army Corps, is on standby status to go anywhere in the world, prepared for combat under any conditions.

From a control center in the United States a practice alert is sounded and, near a large city or industrial complex, a *Nike* battery springs into action with its *Nike Hercules* missiles readied to fire.

In a Mid-western city, a National Guardsman trains in the local armory, while in a Southern town an Army Reservist spends an evening at a training session, learning his role in the Army's new divisional organization.

These scenes are repeated and multiplied throughout the United States and in more than 40 foreign countries. The nation's frontiers are truly global and they are manned by Army men.

In readiness for the broad range of possible warfare, the Army is prepared for nuclear or non-nuclear war, and for every gradation in between. Through its Military Assistance Advisory Groups and Missions, it is prepared to cope with and alleviate the conditions which breed disorder and instability, which generate the discontent and chaos upon which Communist penetration thrives.

Not merely in active and open combat, but in the submerged arena of cold war, the Army has a vital job to do in gaining the loyalty and adherence of peoples in peripheral areas. Wherever Army troops are stationed, a valuable by-product is the goodwill generated by the medical aid, communications, and engineering assistance extended in time of need or local emergency. Our soldiers serve not only as guardians of the peace but as people-to-people ambassadors in the marketplace and village.

Army Tasks

In contributing to the overall defense capability of the United States, the principal tasks of the Army include:

Maintaining forces overseas for the deterrence of aggression, or for effective resistance to aggression if deterrence fails. An important corollary is the provision of Military Assistance Advisory Groups and Military Missions to our allies to increase the effectiveness of their contributions to this task.

Maintaining mobile, combat-ready strategic forces in the United States for the rapid reinforcement of forward deployed forces and of allies in areas where no U. S. forces are now deployed.

Providing forces for the defense of the United States against air attack.

Maintaining a base for rapid mobilization, including strong, ready civilian component forces.

All resources available to the Army are employed to carry out these tasks and the numerous responsibilities which they entail.

Forward-Deployed Army Forces

Army forces deployed overseas along the Iron and Bamboo Curtains serve as a constant reminder of United States willingness to share the hazards of allies who must live under the Communist guns. By standing firm as a visible deterrent to aggression, these forces have an incalculable value in strengthening the morale of friendly nations and their will to resist the inroads of Communism. Together with the other military services and allied armies, these United States units provide concrete evidence to any would-be aggressor that the United States intends to respond in-

stantly to hostile attack, not merely to liberate territory after its conquest by an aggressor.

By their high state of training and readiness, U. S. Army forces overseas, serving alongside allied units as in NATO or Korea, also contribute to the total effectiveness of the allied military effort in another way. They provide models of combat effectiveness. Furthermore, by the association between the troops, their dependents, and local peoples, a better image is developed of America and the ideals for which it stands. Such an image is a strong counter to the continuous barrage of Communist propaganda and subversive efforts in these areas.

In order to give substance to our forward strategy, Army forces deployed overseas must be of sufficient strength to convince our allies of our national will and ability to contribute effectively to their defense. These forces must be such that any hostile nation is convinced that aggression would be costly and would provoke prompt and decisive reaction by American military strength. Finally, these Army forces must be strong enough to have the staying power to fight against numerically superior forces, should aggression occur.

Supporting Contributions

To back up our world-wide deployments in support of our national commitments, an effective training and logistic base in the United States is essential. This base must be capable of supporting a rapid mobilization in event of an emergency. Furthermore, for the conduct of sustained combat operations of any significant scope, it is obvious that our overseas deployed forces or allied forces may have to be reinforced beyond the strength which the Strategic Army Corps could immediately provide. Reconstitution of a strategic reserve in the United States would be required following the deployment of all or a significant portion of the Strategic Army Force.

Thus, the readiness of the Army National Guard and Army Reserve is of paramount importance for the accomplishment of rapid and efficient mobilization. Well-trained, ready civilian component forces help strengthen the contributions of the active Army's forces to our national commitments by providing staying power that would be required in possible future wars of any significant dimension.

In summary, the Army is making a variety of indispensable contributions to the nation's strength and readiness. Providing for the national security is not a monopoly of any one military service or of any single type of military force. It involves the combined and coordinated efforts of all the U. S. Armed Forces in the closest coordination with our Free World allies.

In this endeavor, the Army plays a pre-eminent role as a versatile force —skilled, determined, and ready for any eventuality in defense of the Free World.

THE COMBAT ARMS

Prepared by Staff of Army Information Digest

CONTROL OF THE GROUND in the deadly business of war provides the same feeling of assurance that comes from sitting in on a card game with a shark, knowing that the high cards will be on your side of the table. This initial advantage is not enough, however, if you don't know the high cards and how they are played.

The essential ingredient necessary to successful combat operations on land is the trained soldier. Although a single trained soldier may well determine the outcome of a local fracas, soldiers must be blended into a coordinated fighting unit to insure success, in large-scale battle. The team principle is fundamental to all our military efforts.

The continuing compression of time and space brought about by modern technological and scientific advances requires a modern military power to tailor its weapons systems accordingly. Unified forces are required—hard-hitting, fast-moving, and adaptable to each area or scope of operations. Our interdependent Army, Navy, and Air Force work together to maintain the tridimensional strength necessary to deal with any enemy on land, at sea, or in the air. Each has a unique and essential role while maintaining the ability to supplement and complement the others.

Further, interlocking world-wide military pacts and commitments envisage the United States fighting, if need be, alongside our allies. Since the strength of the majority of our allies lies in their land forces the Army has special interests in this area.

The three main fighting combat arms are Infantry, Armor, and Artillery. The Corps of Engineers and the Signal Corps are classified as arms as well as services, in that units of these corps also perform combat and combat-support missions. Without detracting from the importance of the engineers and signalmen, consider how the Army team produces land combat power.

"The Queen of Battle" is the infantry. Its basic creed is "Follow Me." If called to battle tomorrow the first foot on enemy land would belong to an infantryman. He may come in over the beach; he might drop from the sky. Be he a soldier or a marine, he will be infantry. His alone is the unique ability to fight on foot under all conditions of weather and terrain. He alone—not the weapon, equipment or hardware—is the decisive element in combat.

The American infantryman had his beginning along with the birth of our nation. On June 14, 1775, the Continental Congress authorized 10 companies of infantry to be raised in Pennsylvania, Maryland, and Virginia. Throughout the history of the country the need for him has never diminished.

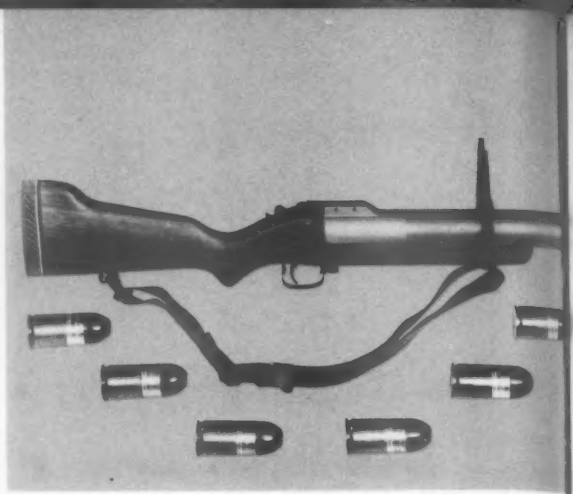
Rapid technological advances of recent years have tended to obscure the importance of the infantryman in modern warfare. It is unrealistic to think that nuclear missiles have made infantry obsolete; recent events —Korea, Lebanon, Laos, Viet Nam—have proved otherwise. While these examples did not involve the use of nuclear or other mass destruction weapons, they again pointed out the need for men on the ground. Even in all-out war some one has to be physically present to occupy what is left of the battlefield or the territory won to insure victory. That is the infantryman's role.

Today's American soldier is a far cry from his ancestor who reported for duty with his own flintlock, hunting garb, and corn. Because of the many possibilities in modern war, the ground soldier must be lightly but powerfully equipped. The Army's Technical Services have the aim of making today's soldier the best armed, equipped, fed, clothed, and protected of any in the world. These services provide the essential support which gives the Army its sustained ground combat power.

Thus each soldier is given the best combat clothing, personal equipment, and food which modern science and ingenuity can produce. Impressive advances are being made in moving the soldier and his equipment. Despite progress from the "deuce and a half" of WW II to the possible future use of "zero ground pressure" vehicles, the infantryman in the final measure will move close to the nap of the earth, on foot or vehicle, with weapon in hand.

Until the Army is completely armed with the new M-14 rifle, the infantryman will fight with the M-1 *Garand* initially issued in WW II. Continuing research and development strives to develop weapons ranging from small arms to tactical missiles in order to provide the soldier with the ability to produce any desired degree of force to meet varying conditions. In the foot soldier's arsenal today are the M-60 machine gun, the M-40 series of recoilless rifles, the *Claymore* antipersonnel weapon and *Davy Crockett,* among others. Such items are the tools of his trade.

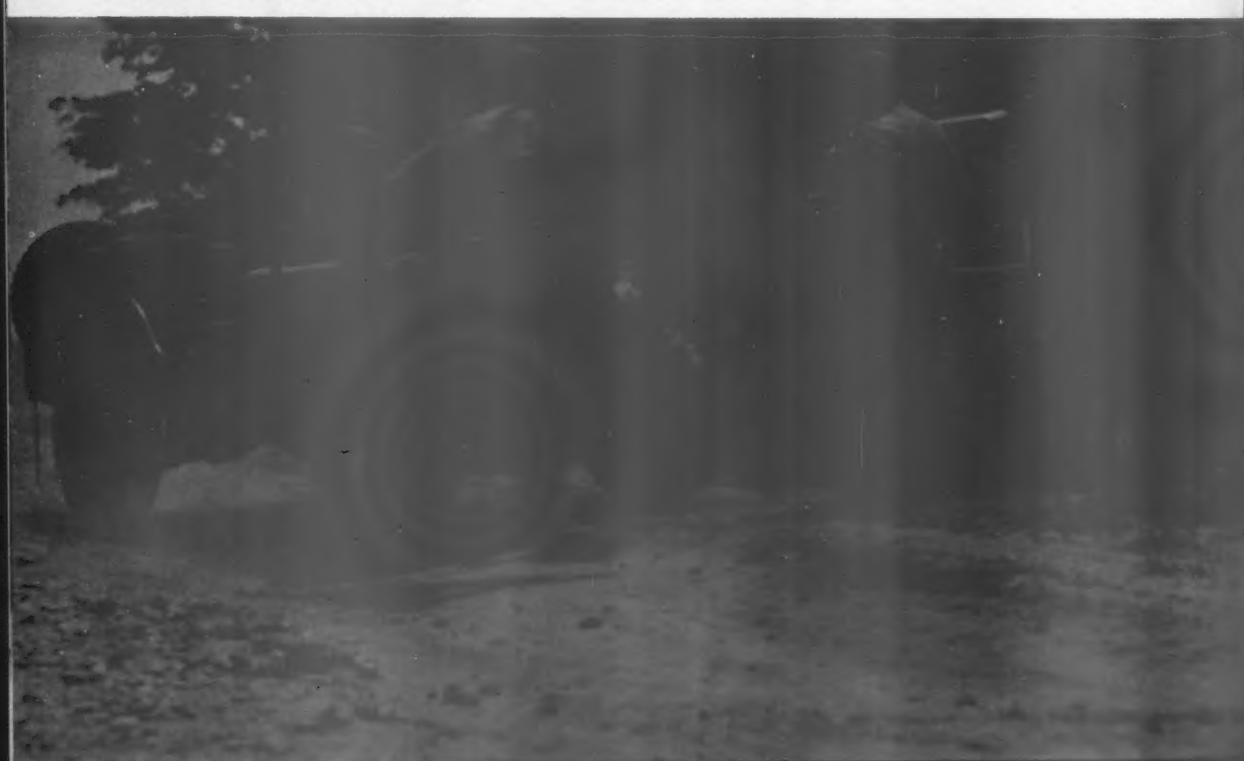
Infantry has the additional ability to move or fight with any means of mobility provided. It may not be advisable to fight from the back of a truck, but it has been done. Armored personnel carriers give more protection, from nuclear as well as conventional weapons. Infantry provided with aircraft support on the battlefield can engage in airmobile operations.



The lightweight XM-79 Grenade Launcher gives soldier an area of coverage beyond the range of hand grenade.

As Secretary of the Army Stahr has pointed out: "To the Army, flying is not an end in itself, nor is it competitive with the aviation of any other service. Even as we move more and more into the first few hundred feet above the actual surface of the earth, our mission remains: '. . . prompt and sustained combat incident to operations on land.' I think the term 'flying soldiers,' which encompasses not only our aviators but also the

A Signal Corps soldier rushes a message to subscriber station of AN/TSC-20, a new radio communications system.



An M-113 Armored Personnel Carrier emerges from water of Victory Pond during exercises at Fort Benning, Ga.

commanders and troops who fly with them, is expressive of the philosophy of an Army which must move through the air to an ever-increasing degree if it is to accomplish its mission."

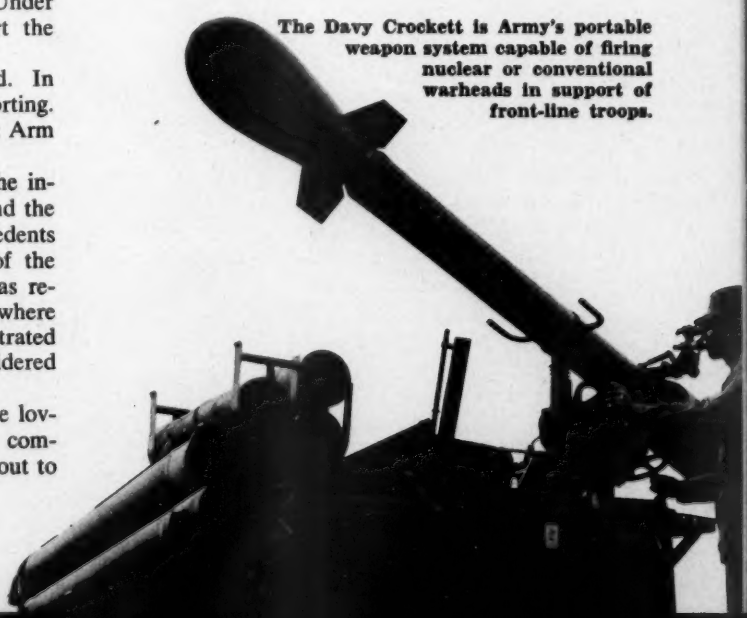
Tactical mobility is the capability of movement in the presence of an enemy. Such mobility requires thoroughly trained units equipped with powerful weapons and lightweight equipment. Tactical mobility also requires the attainment of unrestricted cross-country movement through the proper combination of movement by foot, by ground vehicles, or aircraft. Under these circumstances tanks when present support the infantry.

The basic armor function is to fight mounted. In five-card stud that ace in the hole is mighty comforting. So it is with Armor. It is known as the "Combat Arm of Decision."

Armor does not have a long history as does the infantry. It belongs to the age of mechanization and the internal-combustion engine. However, its antecedents in the old horse cavalry are evident in some of the characteristics of armor employment, especially as regards mobility. Certainly a tank cannot go everywhere a man on foot can, but the war in Korea demonstrated the value of the tank in terrain not normally considered suited to its use.

Before World War II infantrymen did not have loving things to say about their horse-mounted compatriots. It was the same when horses were put out to pasture and armor entered the picture. Overlooked was the time spent in maintaining the beast for the questionable pleasure of riding him.

The tank was first used in battle in World War I. Tied down to the pace of trench warfare, it did not progress beyond the category of a movable pillbox. Capitalizing on its inherent mobility, the German Army achieved spectacular successes in the early days of WW II with tank divisions and larger formations.



The Davy Crockett is Army's portable weapon system capable of firing nuclear or conventional warheads in support of front-line troops.

American armor profited from the German example and made a valuable contribution to the final victory in Europe. To a lesser but still valuable degree, tanks were also used in the jungles of the South Pacific.

Even in the atomic era armor retains its battlefield potential. Because of its built-in protection against enemy fire, it possesses a greater degree of protection against nuclear blast and radiation than is otherwise found in the battle area. This protection has never been to guarantee the crew a long, happy life; rather, it provides sufficient protection to insure the reasonably successful delivery of armor's firepower and shock action at the proper time and place.

Because of these capabilities—firepower and shock action—mounted weapons protected by armor continue to enhance the soldier's effectiveness on the battlefield. Perhaps this is one reason why Russian military doctrine states that armored forces are the basic striking force of the Soviet land army.

As the infantryman is replacing his M-1 with the M-14, the tanker is now turning in his M-48 "Pattons" for the M-60, the new main battle tank. Initially, the training base in the States received the first of this series. As funds and production facilities are made available, the M-60 will be phased into units in Europe and eventually become the standard tank Army-wide.

The Army spent a long time in the production of the M-60. It carefully assayed all the desirable characteristics and has come forth with a powerful brute. The principal armament is a British-designed 105-mm. gun equipped with appropriate fire control systems that can fire shells of various categories, primarily anti-tank. It also has two machine guns mainly for use against personnel. Powered by a diesel engine, it carries enough fuel for a day's operations.

The firepower of a tank is usually of the direct-fire type. It lines its sights up on a target—WHAAP!—a kill. Sometimes when the target is beyond the sight of

The Honest John rocket, shown here in position in Alaska, is one of a variety of guns, rockets, and missiles used by Artillery, known as the "King of Battle."

M-60 tank provides mobile firepower and crew protection in combat. In addition to 105-mm. howitzer, the ultramodern tank carries .30- and .50-caliber machine guns.

Hawk missile, mounted on triple launcher, is surface-to-air weapon to provide for defense against low-flying enemy aircraft.

The 175-mm. self-propelled gun is designed to supply general artillery support to ground troops and armor.

The M-110 self-propelled 8-inch howitzer weighs 21 tons, half as much as the model it will replace.

the gunner, its fire is of the indirect-fire type. Such fires are more properly the function of the third combat arm.

Artillery is the "King of Battle." Its mission is to support the ground-gaining arms. As with the infantry, artillery has had long and honorable service in the defense of our American liberty. In fact, one artillery unit, "The Provincial Company of Artillery of the Colony of New York," is four months older than the nation itself. This "company" is the direct ancestor of Battery D (Alexander Hamilton Battery) 5th Artillery organic to the 1st Infantry Division.

A history of Hamilton's Battery mirrors the growth and trials of the United States and traces as well the development of artillery since the Revolution. The battery fired its first salvo eight days after the Declaration of Independence was proclaimed. Its last combat firing was with the 1st Division in Germany in World War II. The battery now has a training mission. The intervening years have seen the battery's weapons develop from muzzleloading "two pounders" to *Honest John* rockets.

Although its weapons have changed, from smoothbore and rifled cannon to supersonic ground-to-ground missiles, the artillery has always had the same purpose in being—fire support for close-combat forces. Artillery has the capability of delivering all types of fires. Fire support elements must be capable of accurately delivering nuclear and nonnuclear support in the proportion required.

Artillery as the primary supporting arm has a variety of guns, rockets, and missiles, each with its own role to perform. Eight-inch guns and *Honest John* rockets are the mainstays of the close-in support weapons. *Little John* rockets augment this firepower. Further back from the front lines can be found larger caliber guns and howitzers and longer range missiles. The liquid-fueled *Corporal* missile will be replaced by the more lethal solid-propellant *Sergeant*. The *Pershing*, smaller, more mobile, and with a greater range, will take the place of the cumbersome *Redstone*. Operating closer to the troops is the *Hawk*, and under development and test is the shoulder-fired *Redeye*, both antiaircraft missiles.

The Army has recently announced a change in the structure of its divisions. This is characteristic of the modern thinking which must keep the Army abreast of changing time and conditions. Concepts and organizations are constantly being updated and changed to insure that no large unwieldy—and hence vulnerable—unit will be found on the battlefield of the future.

Working in combination and in mutual support of each other, Infantry, Armor, and Artillery form a battle-tested team, organized to achieve optimum results. The combined combat arms approach produces a smooth-working fighting team, not only within the Army but among the services as well. When the "Queen of Battle," supported by the "King of Battle" and backed up by the ace "Combat Arm of Decision," is joined by two other toppers of air and naval power, it makes a high-card straight that is mighty hard to beat.

AVIATION WITHIN THE ARMY

By Brig. Gen. CLIFTON F. Von KANN
Director of Army Aviation, ODCSOPS, Department of the Army

A CYNIC ONCE OBSERVED that it is relatively impossible to change most people's opinions—the best you can hope for is a slight rearrangement of their prejudices. I cannot subscribe to such a harsh viewpoint, and I believe the basic purpose of our official information media is to respond to the inquiring mind of the mature military man. As a result, our soldiers, sailors, and airmen are the best informed and knowledgeable in the world.

Since Army aviation and its objectives are subject to considerable misunderstanding, I am particularly pleased to have the opportunity to discuss this subject with the readers of THE AIRMAN. Many flippant critics of the military see the services in a continual struggle where the Army wants its own air force, the Air Force wants its own soldiers, and the Navy can sit back and smile because it already has its own army and air force. This distorted impression of interservice rivalry is detrimental to the entire defense effort, and we in uniform must make sure we do nothing to lend credence to it. I hope to put the picture of Army aviation in proper perspective, to indicate its future goals, and to touch on its unique methods of employment.

When we talk of aviation in the Army, we are talking of that aviation that must be organic to the *ground commander* for the *ground battle*. Army aviation is part of that ground battle just as surely as the trucks and ground support equipment of the Air Force are part of the air battle. The very words "Army aviation" are slightly misleading since they indicate a special group or "package." Actually, Army aviation cannot be looked upon as a separate entity any more than we can look upon the totality of our tanks as a centralized fleet. Our organic aviation is decentralized in small units or sections throughout the Army down to the lowest possible echelon that has a continuous need for organic air. There is no "aviation" chain of command, and our pilots are primarily infantrymen, artillerymen, or officers of one of the other seven branches authorized aviators. The Army expects and demands that its aviators be more than highly professional pilots. They must also be competent ground officers familiar with the tactics and techniques of land combat and practices and procedures of logistical support operations.

How did this need for organic aviation come about? Army aviation, as it is known today, officially claims June 6, 1942, as its birthday, for this was the date on which the War Department authorized organic aviation to the field artillery. However, there are many historical links of Army aviation to the early 1900s when

aircraft was first made organic to the Signal Corps. Some extremists contend that Army aviation initiated with the balloon flights of Thaddeus Lowe in the Civil War. I believe that an objective analysis would show that Army aviation and the U. S. Air Force share a common heritage but have evolved along separate and distinct missions.

During World War II, Army aviation grew out of a need for the field artillery to have its own eyes over the battlefield, but it was not very long before the usefulness of these small aircraft became apparent in many other roles—command liaison, wirelaying, evacuation, and limited supply. The rotary wing experience in Korea established further the usefulness of aircraft for medical evacuation and gave us our first insight into the combat value of vertical lift for small Army units. The growth of Army aviation in recent years has been focusing on this latter function. Nowhere else in our arsenal of new weapons and techniques can I see such possibilities for innovation in mobility as those which lie in the use of air vehicles.

Let's take a short look at the sort of aviation hardware the Army is planning to procure and how this hardware will be used. The Army has an overriding requirement for aircraft that are ready to fly when the soldiers whom they serve are ready to fight. These aircraft must live in the environment of the soldier and have the ruggedness required of any equipment in the combat zone. They must be able to fly at minimum altitudes in the so-called "nap of the earth."

The Army has just initiated development of a new light observation helicopter which will replace the small fixed-wing L-19 and two older helicopters, the H-13 and H-23. This light four-place, turbine-powered machine will be a rather high-density item spread through all echelons of the Army to perform what can be called the "bread and butter" missions of Army aviation—command, observation, communication, reconnaissance, and courier. We hope to find large numbers of these aircraft coming into the inventory by 1965 with a goal of over 3,000 by 1970.

In the next category we find the utility tactical transport helicopter which might be called the "squad carrier." The HU-1 *Iroquois* which will fill this mission is now in quantity production and will be assigned in large numbers to the forward units to provide the basic foundation of air mobility within the division. This machine will also be the principal means of aeromedical evacuation. In its later versions it will be able to carry 11 combat-equipped troops. It is indicative of the Army aviation program and its goals that this helicopter and the light observation helicopter will constitute approximately 75 percent of the Army aviation inventory by 1970.

The next aircraft of interest is the new combat surveillance aircraft, the AO-1 *Mohawk*. This is a new category of aircraft to extend the Army's target acquisition capability to match the firepower potential now existing in the Army's missile systems. The *Mohawk* is a twin-turbine, STOL (short takeoff and landing)

The turbo-prop Mohawk, twin-place observation craft, is capable of speeds up to 275 knots. It can operate from unimproved runways. Range exceeds 1,400 miles.

aircraft and will carry a variety of cameras and electronic sensors to search the forward battle area. This aircraft, and the two I have mentioned before, will comprise the three types of aircraft to be found in the division organization. They will all use the same fuel, and the *Iroquois* and *Mohawk* will utilize the same basic engine. Their designs have concentrated on the characteristics of simplicity, ease of maintenance, and long-life components.

Backing up the division aviation potential we will find a team of two aircraft composed of a three-ton helicopter, the *Chinook,* and a three-ton STOL transport, the *Caribou.* These aircraft, assigned to the corps and field Army, will lift the heavier loads of troops and supplies required to support the division effort. Another requirement, not yet programmed, is the aerial crane—a short-haul obstacle crosser with a capacity from 10 to 12 tons. Many prototypes have demonstrated the usefulness and feasibility of such a vehicle. In the next few years we hope to see this aircraft come into the inventory.

Each aircraft that the Army is planning to procure fits a mission level and an organization level dictated by capabilities clearly required on a continuing basis. Remember, these aircraft belong to the organization where they are assigned just as trucks and personnel carriers are unit equipment. As an indication of the

future employment the Army foresees for its aircraft, we might take a brief look at a new organization which completely integrates aviation into an Army unit—the air cavalry troop.

The traditional reconnaissance mission of the cavalry has been greatly magnified in the nuclear battlefield. Large gaps will normally exist between units. Depths and frontages of all echelons will be greatly increased. It becomes apparent that since the Army commander will not actually be occupying much of the territory he must control, he must know what is going on within this territory, on the flanks, and far beyond the area of contact.

The air cavalry troop—where every man has a seat in a helicopter—is composed of an aerial scout platoon, an aerial infantry platoon, a weapons and support platoon that are completely air mobile. Using armed aircraft, such a unit will be able to probe the gaps of the battlefield by fire and movement. This movement will be in bounds with one or two aircraft covering the movements of others. They will move deliberately from one point of cover to the next, hovering rather frequently within a few feet of cover. They can drop out of sight quickly if engaged by fire. With machine guns, rockets, and missiles they will execute the battle-tested device of reconnaissance by fire. We do not contemplate such an organization involved in fire fights, for discovery of the enemy is their primary function. Such a unit will have the responsiveness required to cope with infiltration and guerrilla units within our own lines, as well as on the flanks and in forward areas.

One vehicle of the air cavalry troop will be the HU-1 helicopter armed with wire-guided anti-tank missiles.

In view of the tactics and techniques which have been evolved from several years of testing such a unit, I do not believe that their vulnerability is unacceptable. Contour flying, careful route selection, suppressive fire, surprise employment during conditions of poor visibility—all these tend to protect such movement. This air cavalry unit is essentially a combined arms team capable of performing all the conventional missions of cavalry but with a tremendously increased mobility potential. I see the air cavalry concept as the beginning of many similar organizations which combine the two most mobile elements in our Army—the helicopter and the foot soldier.

Artist's conception of the Skycrane, one of many proposals under consideration for this type of vehicle.

The STOL transport, Caribou, can operate from almost any type of landing field in the combat area to deliver troops or evacuate the wounded.

This mock-up of a new observation helicopter shows one of the three prototypes now in testing stages.

New Army transport helicopter, HC-1 Chinook, can lift Pershing missile, three tons of cargo, or 32 troops.

You can readily see from the above discussion that Army aviation cannot be identified as separate from the other elements of the Army. There is really only one mission of Army aviation and that is to augment the capability of the Army to conduct effective ground combat operations. It must be responsive to the small unit commander and indeed as much a part of his team as the artillery and armor that form his present combat support. This means one hundred percent of the time.

Somewhere beyond 1970 we envision technological breakthroughs which will allow new concepts of vertical takeoff and landing to provide even better air vehicles for the flying soldiers. These vehicles will combine the best characteristics of the helicopter and the fixed-wing aircraft without the penalties now associated with either of these types.

The mission of the Army will remain the same—sustained ground combat. But to accomplish that mission the Army of the future will move through the air to an ever increasing degree. Army aviation will play a large part in this future combat, not as a separate support organization but as an integral element of the Army's combat organizations.

I hope I have been able to show that the organic air of the Army is not in competition with the aviation of any of the other services, nor does it duplicate the other aviation elements in the military establishment. The Army aviation badge, as well as the paratrooper badge, is listed in our regulations as a *ground* badge insignia. This was no mistake. It was a deliberate effort to emphasize the fact that the Army aviator is very much a member of the ground combat force.

Some day, if you see an Army *Mohawk* parked on the transient ramp next to an Air Force RF-105, I trust you will see them as complementary systems—both essential to this nation's defense—each designed to meet special criteria for a specific mission. You cannot compare two such aircraft unless you visualize their distinct methods of employment. Therefore, I must remind you that the ramp of an airfield complex is not the natural habitat of the *Mohawk*—you must see it in a muddy, little forward strip to appreciate its environment. Conversely, the Army doesn't pretend that its aircraft can perform the vital mission of the Tactical Air Command. In fact, the Army, as it becomes more air mobile, forecasts a growing need for the airlift and close support of the Air Force and an increasing need for intimate coordination between the services to meet a common enemy.

The Army and the Air Force have been battle partners for a long time. Each respects and understands the other's problems, making each a strong, effective member of the tri-service team.

THE ARMY'S ROLE IN CONTINENTAL AIR DEFENSE

"We're partners in defense
Guarding Freedom's skies;
United one and all,
With peace on earth the prize."
—Official NORAD March

Lt. Gen. ROBERT J. WOOD
Commanding General
U. S. Army Air Defense Command

THE ARMY AIR DEFENSE COMMAND finds it easy to subscribe to these words from *Partners in Defense,* the official march of the North American Air Defense Command (NORAD). For we of the Army are truly partners in defense with those elements of the Air Force, Navy, and the Royal Canadian Air Force which make up NORAD. We are guarding freedom's skies, and the prize is, in fact, peace on earth.

NORAD's mission is to defend North America against a deadly foe who has threatened to "bury" us, a foe who could, if unopposed, flatten every important target in North America. We believe that our readiness to defend our homeland constitutes one of the important reasons why the enemy has restrained his formidable attack forces.

We of ARADCOM recognize the threat of immediate and deadly air attack on North America to be a part of the global threat which includes threats against our forward-deployed forces and against our allies.

One threat or another is being applied constantly by the enemy to all facets of human endeavor; at one spot on the globe with the velvet glove, at another with the mailed fist.

From the air defense point of view, our most likely antagonist is a triple-threat outfit. His triple punch consists of bombers, intercontinental ballistic missiles (ICBM), and submarine-launched ballistic missiles (SLBM). At the present time the bomber is the most important of these threats, but this is expected to change in the next few years, with the missile eventually becoming the primary threat.

The missile threat is not replacing the bomber threat; it is being *added* to it.

To be safe in our homes, we must meet and overcome all three threats. So let's take a look at them.

Although the Soviet Union recently displayed a new, swept-winged bomber of an advanced type, the backbone of Soviet long-range aviation comprises three types: the *Badger,* the *Bison,* and the *Bear.* These aircraft are not copies of our aircraft; they are Soviet originals. In manner of performance, these Soviet aircraft are roughly equivalent to our B-47 and B-52.

The booster achievements of the Soviets, such as the moon shot *Sputnik,* and long-range surface-to-surface shots, force us to conclude that they have the ability to hit any spot in North America.

It's an academic question as to whether they have enough missiles right now to destroy us, because if they do not have them now, they can have them in due course.

Among the 300 or more Soviet submarines are a number which can launch missiles against land targets. Anti-submarine warfare is a Navy problem, but once the submarine launches a weapon at our homeland, the problem becomes an air defense (or missile defense) problem.

To meet these threats from land, sea, and air, NORAD must perform four functions. These are: to detect the enemy, to identify him, to intercept him, and to destroy him. To accomplish these functions, NORAD has deployed more than 200,000 men and women across the width and breadth of North America and on our seaward approaches. These personnel operate a combination of detection systems, command and control networks, and weapons systems around the clock daily, 365 days a year.

Nike Hercules missiles like these have "killed" supersonic targets in tests from 1,000 to above 150,000 feet.

Interceptors of USAF, the USN, and the RCAF are ready to pounce upon any attacking force, and are capable of increasing the ferocity of their attack if the the enemy were to approach our population centers. Any of the invading force able to evade the interceptors would be destroyed by surface-to-air missiles.

This is the defense-in-depth concept as applied to air defense.

The NORAD scheme of operations functions successfully because of intimate, precise cooperation between all elements.

To maintain the necessary positive control, the fighting elements of all NORAD components are under the operational control of designated NORAD region and sector commanders.

The Army fits into the NORAD scheme by providing combat-ready air defense forces for the protection of key cities and SAC bases. To accomplish its mission, the Army has deployed more than 38,000 men and women on more than 240 sites in 29 major areas. Approximately 9,000 of these personnel are members of the Army National Guard.

All antiaircraft guns have now been phased out of continental defenses, and Army air defense troops are equipped with the *Nike* missile system, which has proved highly successful in more than 5,000 firings. These missiles are fired by Army troops in annual service practices under simulated combat conditions and successful firings have risen over the years to ARADCOM's present highly reliable successful missile average achieved in 1960.

The *Nike* system is a rocket-propelled, command-guided system. The *Nike* missile itself is relatively simple, with a minimum of on-board components. The really expensive electronic components of the system are ground-based, and are thus capable of being used over and over again.

The Sunday punch of the *Nike* system resides in the *Nike-Hercules,* which, as the second generation of the system, became operational on tactical sites in 1958. *Hercules* has destroyed targets at altitudes from below 1,000 feet to higher than 150,000 feet, and from speeds ranging from subsonic to supersonic. With its nuclear capability, *Hercules* can destroy a whole fleet of attacking aircraft.

With improvements now being incorporated into the system on tactical sites, *Hercules* can destroy air-to-surface missiles. Range of *Hercules* is more than 75 miles.

Complementing *Nike Hercules* is the first generation *Nike,* the *Ajax,* which is being systematically phased out of the active Army. *Ajax* first became operational on tactical sites in 1953, and, though outclassed by its newer, bigger successor, can still destroy any known single operational bombardment aircraft.

Hercules and *Ajax* are deployed around defended areas in fire units known as batteries. The strength of the defense is governed by the number of batteries assigned and by the number of missiles allocated to them. These may vary from a few *Hercules* batteries defending a SAC base, to 25 batteries assigned to defend a major metropolitan area.

To ensure that the fires of the highly-accurate fire units of a defense area are coordinated, the Army has developed the Missile Master. Missile Master ensures that all targets are covered and that no targets are overkilled. Missile Master is compatible with the Air Force SAGE, and exchanges information with SAGE.

Missile Master provides a backup for SAGE through an organization known as the NORAD Control Center.

A NORAD Control Center consists of a Missile Master at which USAF command and control personnel are also present. In the event SAGE or its communications were to become nonoperational, Missile Master, with its NORAD Control Center capability, can control both the Army's *Nike* system and friendly interceptors.

The Army thus contributes not only powerful weapons to NORAD, but also contributes an alternate system which ensures control of all available weapons.

Missile Master is now operational in 10 major defenses. Other, and smaller, defenses are being supplied with a coordinating system known as BIRDIE (Battery Integration and Radar Display Equipment), which, though smaller, performs many of the same functions.

Although *Nike* batteries normally operate under the control of Missile Master or BIRDIE, they are capable of operating independently.

In their operation of the *Nike* system, Missile Master, and BIRDIE, Army Air Defense Command troops draw on more than 44 years of air defense experience dating back to World War I. In 1917 and 1918, anti-aircraft Artillerymen, using machine guns and later guns, first took on the job of shooting at the aircraft of that day. Both aircraft and anti-aircraft means were primitive. World War II saw a greatly sophisticated air threat, which was countered with more sophisticated automatic weapons, 90-mm. guns and 120-mm. guns. In the latter days of the war, these guns were directed by computers which were tied into radars.

The computer-directed anti-aircraft system was developed just in time to counter the threat posed by the German V-I Missile, the "Buzz-bomb." From a relatively slow start in defeating the V-I, Army Anti-aircraft Artillerymen sharpened their aim until, toward the end of the threat, they killed 90 percent of the V-Is launched against them.

The Soviet detonation of a nuclear device in 1949 jolted America into taking a second look at our air defenses, and in 1950 the Army deployed 90-mm. guns and 120-mm. guns around important population and industrial centers in the United States, to be followed by the *Nike* systems.

Throughout its experience in air defense, the Army has learned and relearned that it takes more than good equipment and well-trained men to make an effective air defense force. The Army has learned that it takes experience and myriad day-to-day decisions to forge an effective team. There are many growing pains, some severe, which result in problems to be faced and solutions to be hammered out.

Army Air Defense Artillerymen are drawing deep on their experience and are flexing their muscles as they look forward to the next great leap in air defense —defense against the ballistic missile.

Lightning is slow compared to this Missile Master which can control Nike systems and interceptor aircraft.

Teeth bared in savage defiance, muscles tensed, this K-9 and his handler make a tough combination. Teams like this guard some 240 missile sites coast-to-coast.

The problem of detecting and destroying an ICBM is without doubt one of the most difficult development problems ever tackled. It is a gross understatement to say that defending against the ballistic missile is like trying to hit a bullet with a bullet. At a speed of 18,000 miles per hour, the ICBM is, in fact, traveling eight times as fast as a rifle bullet.

To accomplish this task, the Army looks to the third generation of the successful *Nike* family, the *Nike-Zeus*. Like its predecessors, *Zeus* is a command-guided, rocket-propelled system, and it is being developed by the same dependable Army-industry team which developed the first two members of the *Nike* family. Teamed with the Army Ordnance Missile Command are the Western Electric Company, Bell Telephone Laboratories, Douglas Aircraft Company, and hundreds of sub-contractors.

Zeus is in an advanced state of development and, to date, has had a number of successful firings. All hands look forward to the demonstrations to be conducted next year in which the *Zeus* system located on Kwajalein Atoll will be tested against target cones launched by *Atlas* boosters from the West Coast.

Zeus operates on a scheme very much like that of its predecessors. It may receive early warning from the Ballistic Missile Early Warning System (BMEWS) or from other NORAD sensors, or it may make its own first detections using the powerful *Zeus* Acquisition Radar (or ZAR) equipped with the newly developed Luneberg lens. Detection information will be fed into a computer and, at the appropriate time, the *Zeus* Target Tracking Radar will be beamed at the target. This highly accurate radar will supply continuous target position information to the *Zeus* computer, which will solve the intercept problem.

The *Zeus* missile will be observed and guided by a Missile Tracking Radar, which will supply continuous *Zeus* missile information to the computer. From this continuous information as to locations of both the target and the *Zeus* missile, the computer will recompute the intercept problem and will send a burst command to the *Zeus* warhead at such a time as to ensure destruction of the target.

The size of the burst area provided by the *Zeus* warhead will be such that the problem of hitting a bullet with a bullet is changed into one of hitting a flying barrel by heaving a football field at it. A direct hit will not be necessary.

The feasibility of destroying one missile with another missile has been demonstrated several times. Among other missile-to-missile intercepts, the Army has destroyed a *Corporal* ballistic missile with a *Hercules;* it has killed the *Honest John* and *Little John* ballistic missiles with the *Hawk* guided missile, and it has killed one *Hercules* with another *Hercules.* In the *Hercules* to *Hercules* shot, the closing speed of the missiles was in excess of Mach 7.

"But what about decoys?" the skeptic asks. "Can *Zeus* sort out the true warhead from decoys?"

The Army is well aware of the possibility of a future decoy threat, and is developing discrimination techniques in the *Zeus* system to handle the decoy problem.

Confident that *Zeus* will prove to be an effective missile killer, ARADCOM is preparing plans for its deployment and operation. Hand-picked groups of ARADCOM personnel already are on-site at White Sands Missile Range, Point Mugu and on Kwajalein Atoll participating in combined tests. These key personnel will not only bring practical air defense knowledge to bear on problems encountered during the tests, but will bring detailed knowledge of the system back to ARADCOM after the tests are concluded.

It is a safe bet that the enemy is developing an anti-missile missile thereby presenting us with a problem which we dare not evade. If he were to develop and deploy a reliable anti-missile system before we develop one, where would that put us? Certainly the side first to develop and deploy a reliable anti-missile would gain important military and psychological advantages.

We may well be in a race to determine which side can first develop and deploy such an effective anti-missile system. If so, it is a race in which the winner takes all; there is no second prize.

Side by side with our NORAD comrades in arms, we of ARADCOM are training so as to win.

As the men and women of the Army Air Defense Command go about their routine, instrumented duties, be they on isolated outposts or in command and control headquarters, as they watch and wait for an attack which is as remote as thousands of miles and as faceless as space or air, they may well consider the words of our Commander in Chief:

"We must look to long days ahead, which if we are courageous and persevering can bring us what we all desire. . . . All of us I know love our country, and we shall all do our best to serve it."

"The fighting man is the one important commodity of which there is never enough, and for which there is no acceptable substitute."

TRAINING

THE SOLDIER—the individual fighting man—is the Army's key to success or failure. No team, military or otherwise, can be more effective than the individuals comprising it, and the individual soldier is the foundation upon which the whole Army team is based.

Unless the soldier has certain qualities and can do certain things, he cannot contribute to his team's military objective. The only way that those qualities and abilities can be developed is through training. This, then, is a primary mission of the Army—training the individual soldier and team member. It is a mission that never ends for there is always something new for the soldier to learn, or something old to learn better.

The importance of training soldiers before wartime has not always been recognized in this country. Almost from the beginning the American people have tended to place great reliance upon our "natural fighting ability." Feeling has been strong that Americans, as such, are just naturally better fighters than any foreign soldiers.

Unfortunately for our soldiers, this belief has not always stood the test of battle. The fact that our men individually possess courage, fortitude, and self-reliance is no guarantee that they will necessarily display these same admirable qualities when aggregated as soldiers. Even when an army is animated by burning patriotism, it must still have instruction and discipline to prepare it for battle.

Our military history provides striking lessons, both positive and negative, proving the value of training. In fact, all our successes can be explained in part by the quality of training that preceded them, and our occasional failures have reflected a corresponding lack of training in the troops involved. This was graphically illustrated in our defeats at Long Island in 1776, at Bladensburg in 1814, and at Bull Run in 1861. The later successes of the same troops, after training had given them skill and discipline, tell the story.

There is a big difference between a man when he first takes the enlistment oath and the trained soldier who can take the objective in battle. The adjective in the term "trained soldier" implies two things—that he knows what the soldier must know and be able to do individually, and how to apply this knowledge and skill to the functioning of his unit.

When we speak of a trained unit, we are merely saying that its members are trained soldiers. The focus remains upon individuals. This is true even with reference to the training which enables several units to work as a team—it is still the people of the units who are being trained to apply their individual efforts toward a group objective. This may be the limited objective of a platoon or squad or the more complex objective of a division or an army. The size of the unit or the number of persons involved does not change the principle. Accordingly, the Army concentrates on the individual as the common denominator of all its training effort.

It is axiomatic that a soldier cannot function as a member of a fighting team until he has mastered his own job. This, then, is the first requirement of training—to produce a proficient, confident soldier, ready to take his place in the team and possessing those qualities which will mark him as a potential team leader. All of the Army training program is directed at this one goal—to prepare the soldier for his ultimate mission of participating in combat as the member of a unit.

In ancient times when battle was restricted to man-to-man physical encounter, it was possible for the individual soldier to possess all the knowledge and skill necessary for victory. The fighting team contained but one type of soldier in the ranks. Victory was gained through the cumulative efforts of many soldiers who possessed the same basic knowledge and skills and used the same weapons. This has not been true for hundreds of years, and as the machinery and tactics of war become more complex it becomes even less true.

Every soldier in the United States Army is still trained basically as an infantryman, but it becomes increasingly apparent that in modern warfare the role of the individual soldier may frequently be something other than the personal delivery of fire upon the enemy. The age-old mission of the soldier—to fight—has come

by General **HERBERT B. POWELL**

Commanding General, U. S. Continental Army Command

THE SOLDIER

to include every activity that makes a unit, or an army, or a nation, *able* to fight. The soldier's military task may not necessarily include the operation of a weapon, but it always has a *combat purpose* and helps to determine the outcome.

There are two main elements to the overall training problem. The first of these is getting the men; the second is training them.

Getting the men is part of the problem because of the wide variety of aptitudes, beliefs, and skills found in trainees coming from every walk of life, with all kinds of schooling and widely varied civilian experiences. Under "getting the men," furthermore, is the additional factor of their length of service, for this has a strong bearing on the duration and kind of training the Army can give them. The present service period for most soldiers is specifically limited. For more than half of the Army's present enlisted personnel, a 24-month tour is the maximum they are required to serve on active duty. Those who do not wish to enter a new enlistment on completion of their two-year tour acquire or revert to reserve status.

This unusually high rate of turnover has one long-range benefit—it steadily enlarges the pool of trained men that would be available in the event of full mobilization. For the Army's current requirements, however, this rapid turnover is a distinct handicap, especially in view of the ceiling that now governs the Army's overall strength.

In order to obtain the maximum benefit from each

The qualities and attributes of the soldier can be developed only by realistic training.

Training begins with the individual, but the entire training program is directed at one goal—to prepare the soldier for ultimate participation in combat as the member of a unit.

man in terms of serviceable time remaining after he completes training, we must turn out well-trained soldiers, including many types of technicians and specialists, in the shortest possible time.

To this end, the Army's standard training program is divided roughly into six major phases. These are (1) basic military training, also referred to as basic combat training; (2) advanced individual training; (3) unit training, also called basic unit training; (4) combined arms training, also called advanced unit training; (5) field exercises and maneuvers; and (6) operational readiness training.

Because military lessons, like any other, cannot be absorbed in a single undigested mass, the training program must proceed from the simple to the complex, from principle to practice, from rudiments to refinements. This is why in his early training the soldier begins with lessons that primarily concern his individual actions. He first learns what he personally must be and do to be considered a soldier. Then he begins to learn how these soldierly qualities and skills are applied to the functioning of his team.

These are not separate and successive stages of the soldier's career. Nothing that he learns is all one kind of training or all the other. Marksmanship, for example, is an individual skill, but its military value lies in the application of that skill to the unit's mission. Obedience is an individual quality, but its prime function is to insure the unit's ability to accomplish the tasks assigned to it.

All new soldiers undergo the same type of training in the first eight weeks. During this period the Army strives to assist the trainee in his transition from civilian to military life. The new soldier must learn to live as a soldier with other soldiers. He learns to accept discipline and develops proper habits of eating, sleeping, recreation, and sanitation. Considerable emphasis is placed upon conditioning and toughening the new soldier physically and emotionally to withstand the shock and exhaustion of the battlefield.

During the first eight weeks he also begins his mastery of the individual weapons and techniques which are vitally important to the combat efficiency of every soldier and every unit. He spends much time in the field in realistic and practical exercises designed to prepare him both professionally and psychologically for combat. There are long hours of weapons training, building field fortifications, going through obstacle and infiltration courses, learning rifle squad tactics, cleaning and maintaining equipment, practicing first aid, field sanitation and protective measures against chemical-biological-radiological weapons, and a host of other very personal combat skills. The new soldier also receives instruction in military courtesy and customs of the service, traditions of the Army, military justice, the soldier's Code of Conduct, and a continuing orientation to help him better understand why he is in the Army and what he will be fighting for if called into combat.

During this same period, the Army makes a careful evaluation of each man to determine where he will best fit in and be most useful to the Army. Combat adaptability tests and specific aptitude tests are administered. Pre-service education and experience in civilian skills usable to the Army are taken into consideration as are the commander's observations of the individual's personality traits and attitudes. In this way, the Army attempts to assign individual soldiers to spe-

cific arms and branches for which they are best qualified and where they will produce readier combat units in less training time. Some men may even be found to be professionally qualified for certain Army jobs by virtue of civilian training and experience and may, upon completion of basic combat training, be assigned directly to a unit where that particular skill is required.

For those soldiers selected for assignment to the combat arms—Infantry, Artillery, Armor and Combat Engineers—the advanced individual training phase is like a continuation of the first phase, but at a more advanced level and stressing the fundamentals of his particular branch. Emphasis is now placed on the importance of the soldier as a member of a team rather than on his ability to handle a weapon and survive on the battlefield as an individual. He gets more practice with individual weapons, but he also receives training with larger, crew-served weapons and their use for mutual support and coordinated attacks. Basic principles of military operations are reinforced and expanded upon. At the end of eight weeks, the soldier is ready for assignment to a unit.

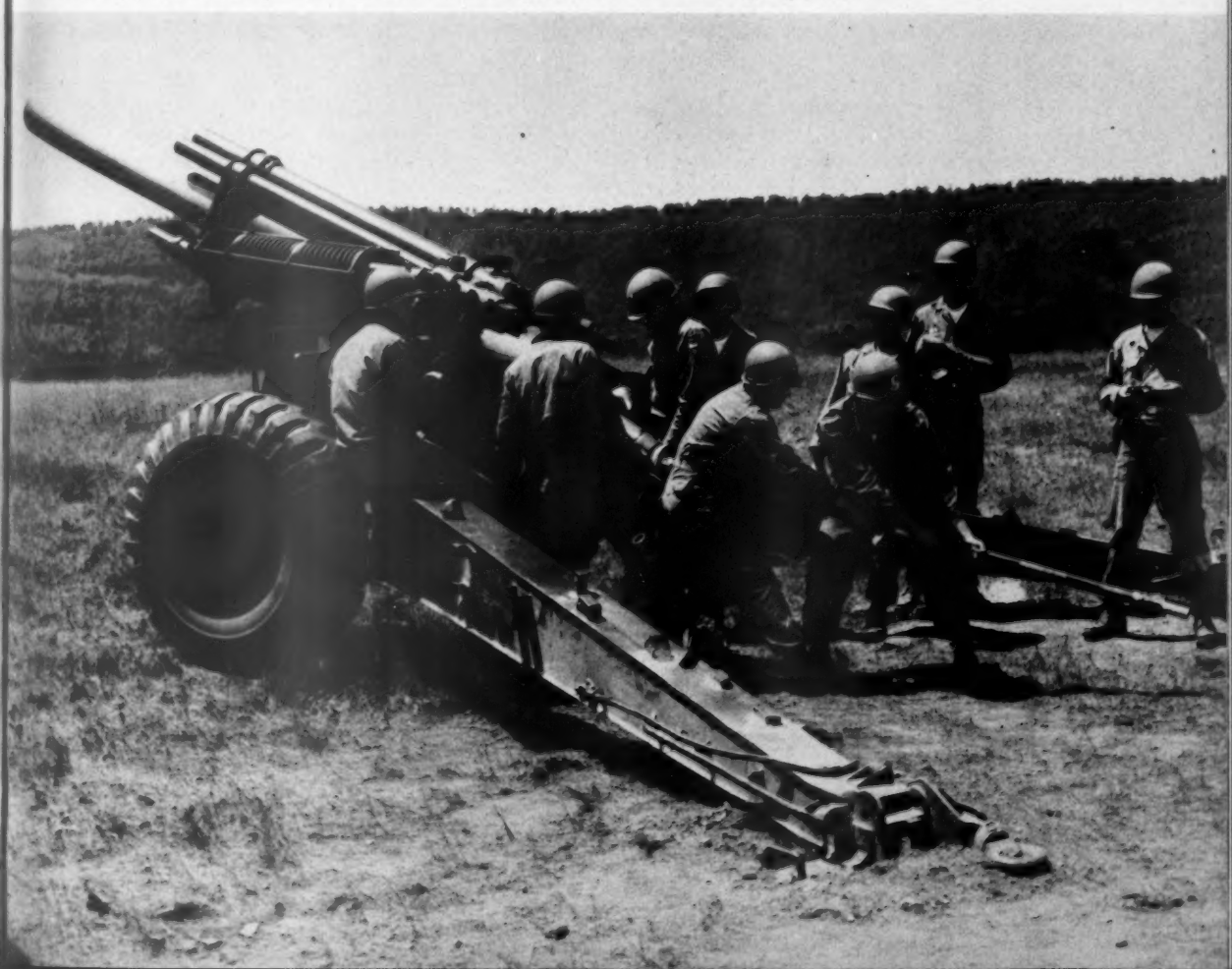
Meanwhile, the soldier whose special aptitudes or civilian experience indicated potential ability in some other skill needed by the Army will have been enrolled in an Army school. Upon completion of a course of instruction ranging from a few weeks to many months, he, too, will be ready for assignment to a unit as a specialist.

The new soldiers are now ready for assignment to a unit for the unit training phase of the overall training program. This is a continuous program designed to develop and maintain teamwork and unit integrity and to bring the men and the organization to which they are assigned up to the peak of condition and operational efficiency.

In the combat arms, unit training is conducted in two overlapping phases. The first phase, basic unit training, stresses teamwork and molding individual skills into effective squads, platoons, and companies. In the second phase—advanced unit training—these smaller units are integrated into larger combat organizations and trained as units. Here, infantry-armor-artillery teamwork is developed. The soldier also learns about the capabilities and limitations of supporting weapons and services.

Upon completion of specified programs of unit training, the soldier is ready for the culmination of all Army training—short of actual combat—the field exercise or maneuver. A maneuver gives the individual soldier ex-

As training advances, emphasis is placed on the importance of the soldier-group as a team.



NCO of 101st Airborne Division administers first aid to a comrade during CBR training at Fort Campbell, Ky.

perience in living and "fighting" in the open under realistically simulated combat conditions for an extended period of time. It gives units experience in operating as closely knit organizations in the field and an opportunity to check and improve their techniques of administration, intelligence, tactics, and logistics. In many cases the maneuvers may be specially located and designed to train and test men and materiel in arctic, desert, amphibious, airborne, jungle, or helicopter-borne operations. Special emphasis is placed upon coordination and cooperation with elements of the other services participating in joint exercises.

Training does not end with the successful completion of the large-scale field exercise or maneuver. This is always followed by a critical examination of the performance of the units and individuals taking part and further training at the unit level to develop new skills and improve old ones.

Units which are assigned the responsibility for continuous readiness for deployment continue to improve their teamwork by constant training and frequent small-scale practice exercises. They may also engage in specialized training or joint-service training with other U. S. or allied forces in consonance with established plans for their employment in an emergency. There is also emphasis on increasing combat readiness by raising the level of proficiency and professional competence of individual members.

In addition to the continuous, year-round unit training to maintain operational readiness, individual soldiers, noncommissioned officers, and officers may be selected for further training in the U. S. Army school system. Often referred to as the most comprehensive educational program in the world today, this system of troop and service schools offers appropriate levels of training to permit the fullest professional development of technical and leadership abilities necessary for the performance of the overall Army mission.

Courses offered range from relatively simple and short courses for mechanics and crew members to the long, all-encompassing courses of broad general study for senior officers at the Command and General Staff College and the Army War College. Between these extremes lies a wide range of more complex enlisted specialist training courses, Noncommissioned Officer Academies, Noncommissioned Officer courses at various service schools, Officer Candidate Schools, officer orientation, familiarization and career courses at various branch schools, and highly specialized training courses for airborne, aviation, foreign language, special forces, desert, arctic, and special weapons operations.

As the active Army develops new ideas and techniques, these are integrated into all facets of the Army establishment. Training of the soldier in Army National

Teamwork pays off. This engineer group laid footbridge across stream in just six minutes.

Units in continuous readiness for deployment continue to improve their teamwork by constant training and frequent small-scale practice exercises.

Guard and Army Reserve units differs from that of the soldier in the active Army only in the matter of time. In 48 drill periods each year, plus a two-week annual active duty for training period each summer, members of the Guard and Reserve receive individual and unit training based on the same Army training programs used for active Army personnel. Guardsmen and Reservists may also be enrolled in courses at Army schools, either through correspondence or in active duty for training periods.

Today, training is the full-time job of the Army, reaching every individual in every unit and organization. The Chief of Staff himself must give part of his time to this aspect of the Army's readiness. It is no accident, either, that one of his main staff divisions has "Training" in its title.

Within overall Department of Army policies, however, the primary responsibility for keeping our ground forces combat-ready, backed up by ready-trained Army Reserve and Army National Guard forces, rests with the Commanding General, United States Continental Army Command, who is also, in effect, the Army's Training Organization Commander.

The scope of USCONARC's current training effort can best be understood by considering some statistics for the recently completed Fiscal Year 1961:

During this period 10 major training centers and other Army units having replacement training missions produced 181,275 trained individual replacements for the active Army, 45,072 for the Army Reserve, and 61,493 for the Army National Guard.

Thirty-six Army schools and colleges were attended by more than 134,000 United States and foreign military students enrolled in over 600 resident courses ranging in subject from cooking and baking to radar operations, helicopter and fixed wing aircraft piloting, foreign languages, and geopolitics. Another 250,000 students were enrolled by correspondence in some 1,100 nonresident courses in the same schools. In addition, 110 U. S. Army Reserve Schools across the nation offered similar courses to approximately 20,000 members of the Reserve Forces.

At the same time, USCONARC continued the training of more than 312,500 active Army personnel assigned to units of the six U. S. Continental Armies and the Military District of Washington, and some 300,000 personnel in units of the Ready Reserve. It also supervised training of approximately 400,000 Army National Guardsmen.

In the overseas commands, each theater commander is responsible for the conduct of whatever additional or refresher training he may believe necessary to keep all units and personnel under his command, or attached to him for training, at the peak of condition and operational efficiency.

Training responsibility extends down through the Army to every commander and leader, all the way down to the platoon and squad leaders. Each is responsible for seeing that every man in his charge is organized, equipped, and trained to perform his assigned mission.

In the final analysis, training of the individual soldier is also a responsibility of the man himself, for no one will be more affected by his preparedness or lack of preparedness than he. It is the continuing personal responsibility of the individual to keep himself always ready to wage prompt and decisive combat operations on land in support of our national objectives—to be ready at all times to fight—and defeat—the best trained and best equipped soldiers of any other army in the world. To do less would be to invite disaster.

A DAY IN THEIR

ACROSS THE WORLD, the U. S. soldier stands guard at the frontiers of freedom, sharing this responsibility with his Free World allies. Some 40 percent of the active Army is deployed overseas. Army personnel are serving with Military Assistance Advisory Groups and Missions in over 40 locations world-wide.

On every frontier, the threat of aggression is imminent and constant. Whether he serves in Berlin, Southeast Asia, or the Western Hemisphere, the soldier is poised to meet any challenge, in whatever area it presents itself and whatever form it takes.

Despite the radical changes which have come about in the techniques of warfare, today's soldier still leads a life markedly similar in many respects to that of his forebears. War and preparedness still demand the time-honored qualities of courage, loyalty, and determination. The tools may change, but the obligations and responsibilities of soldiering are old as history. Today's soldier, armed with modern weapons, is heir to a gallant tradition.

Eternal tasks of the infantryman — shine your shoes and boots, clean your equipment, especially the rifle—your primary weapon.

A 106 recoilless rifle is moved into position prior to an attack.

LIFE OF A SOLDIER

Parachutes fill the sky as men of the 82d Airborne Division make a jump during a training exercise.

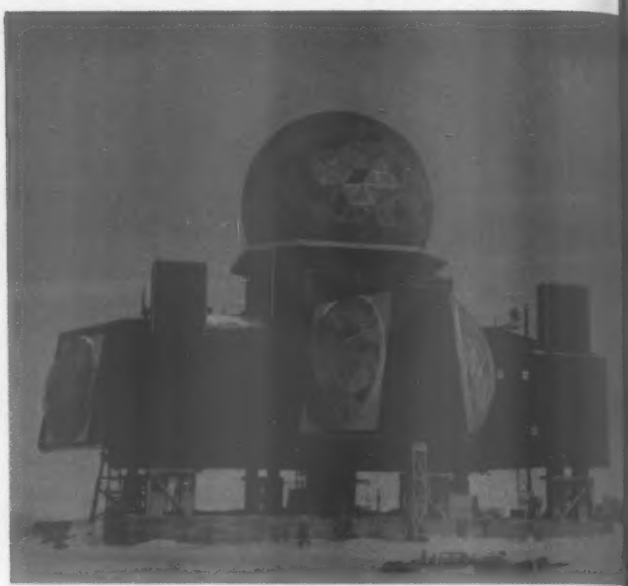
On Okinawa during field training a soldier can take the kind of break he would seldom get in a real war.

Jungles are the realm of Rangers training here in northern Florida.

Soldiers prepare to fire "Lacrosse" missile. It has a 20-mile range.

Formidable, maneuverable tanks provide vital support for troops advancing to take enemy positions. This unit trains in Germany.

HOW THE ARMY SERVES THE AIR FORCE LOGISTICALLY



Prepared by the Office of the Deputy Chief of Staff for Logistics, Department of the Army

MANY OF THE LOGISTIC RELATIONSHIPS between the Departments of Army and the Air Force derive historically from their common origin before the creation of the Department of the Air Force. The military construction function is an example. As in 1947, the Army today is the principal construction agent for the Air Force.

Recent Department of Defense directives and joint agreements among the military departments have increased the impetus toward expanding interservice support. DOD Directive 4000.19 *Basic Policies and Principles for Interservice Support,* published on 26 March 1960, states that "maximum practical utilization of interservice support will be achieved when overall economies can be realized without impairment of military effectiveness." Under this policy each military service will provide interservice support, and each service will request support, in the interest of overall economy for the DOD, to the extent that capabilities and military requirements permit. The four military services have effected joint agreements to implement DOD policies, and they are now engaged in actions leading to further utilization of their total resources through interservice support.

Interservice cooperation in the logistic performance of the integrated land-sea-air team best directs our valuable resources to the common goal of a superb fighting force. Army logistic support of the Air Force is an important part of this effort.

It is a primary function of the Army to organize, train, and equip Army forces for the conduct of prompt and sustained combat operations on land—specifically, forces to defeat enemy land forces and to seize, occupy, and defend land areas.

In preparation for combat and conduct of operations, the Army supports the sea and air components of the land-sea-air team in those aspects of logistics and administration which stem from the Army's assigned roles and missions as the land component of the team. The Army has unique capabilities to provide this support to the Air Force.

Interservice Support Role

During the military mobilization period of the early 1950s the Army's Corps of Engineers constructed the Strategic Air Command's global network of heavy bomber bases, ranging from the Arctic waste of Thule, Greenland, to the deserts of Morocco and Saudi Arabia. The Corps of Engineers is continuing to carry out a world-wide construction and logistic support program for the U. S. Air Force. As the principal construction agency for the Air Force, the Corps is building ICBM bases across the nation, constructing test facilities for Air Force space projects, modernizing and expanding air bases for long-range jet bombers and fighters, as well as carrying on a substantial number of routine jobs such as building barracks, mess halls, ammunition and supply depots, and similar structures. Corps of Engineers construction for the Air Force this year will total approximately $850 million, half of which will be spent for facilities other than for missiles.

The Corps of Engineers' Ballistic Missile Construction Office (CEBMCO) works under the operational control of the Air Force Ballistic Systems Division in order to integrate its work with that of the laboratory and the industrial plant. Both the missile and the launch facility are designed and built concurrently. CEBMCO has a staff of 2,700 Corps of Engineers mili-

tary and civilian personnel throughout the United States devoted to fast-moving support of the rapidly expanding Air Force ICBM base program.

The Corps of Engineers built the launching and test facilities for Patrick AFB, Cape Canaveral, and the new missile center at Vandenberg AFB, Santa Barbara. Additionally, the North American Defense Command facilities including the eastern and western extensions of the Dew line facilties, the Ballistic Missile Early Warning System with stations in Greenland and Alaska, and facilities of the SAGE system were built under the supervision of the Corps of Engineers.

The Army Engineers are engaged in a variety of other types of support to Air Force such as mapping and geodesy. The Army Map Service is the basic geodetic and mapping agency for the Air Force. The Air Force and Navy perform aerial and hydrographic surveys, and the Army produces and furnishes finished maps.

tting on thousands of feet of snow and ice, Dew line radar site on the Greenland ice is a link in America's early warning chain.

When completed, this steel-reinforced concrete air intake tunnel and personnel tunnels will be the only visible structures at "Titan" launch sites.

The Army Transportation Corps' mission to move troops and supplies has resulted in the Corps' providing transportation services for the Air Force on a continuing basis. This includes arrangements for shipment of Air Force personnel and supplies moving through the Army ocean terminals on the Atlantic, Gulf, and Pacific Coasts and, through the activities of the Military Traffic Management Agency, arranging for similar shipments within CONUS. Last year stateside ocean terminals handled 2,471,000 measurement tons of Air Force cargo and 8,000 passengers moving to and from oversea areas.

Besides the stateside ocean terminal services provided the Air Force, the Corps also maintains small ocean terminals solely for the support of the Air Force in 10 foreign countries.

The most formidable operations in the latter category have been those carried out in the Arctic. Starting in 1951, the Transportation Corps handled the movement of supplies for the construction of Thule Air Base. The mission subsequently expanded greatly during the later construction and improvement of Arctic airfields, radar stations, research sites, and distant early warning (Dew line) sites. The peak period was reached in 1952 when the Corps conducted port and logistics-over-the-shore operations in a 3.5 million square mile area. As many as 10,000 Transportation Corps and supporting service troops were used in discharging or outloading more than 800,000 measurement tons of cargo. In 1955, the peak year of Dew line construction, about 3,000 Army stevedoring and lighterage forces served as "mobile terminals," delivering cargoes in a one-time operation to the widely dispersed sites. The landing craft, amphibians, cranes, and other vehicles essential to the over-the-shore operation, were carried from site to site aboard Navy supply ships.

The Air Force is also an active participant in the Army's program for containerization of cargo and currently owns a substantial number of containers in the Army administered CONEX (Container, Express) fleet.

The Army's Quartermaster General provides heraldic services to the Air Force in accordance with public law and joint Army-Air Force regulations. The Institute of Heraldry designs flags, insignia badges, medals, seals, decorations, and other heraldic items and uniform accoutrements. In 1961 the Institute prepared about 250 paintings of Air Force squadron insignia and made 50 manufacturing drawings of Air Force heraldic devices. Currently under development are the Airman's Medal, the Air Force Cross, and the Master Navigator Badge.

The principles of interservice support are also followed in care of the dead. In oversea areas, the Army operates eight mortuaries, and the Air Force operates

seven. Each service provides support to the other without reimbursement. In addition, the Army administers the National Cemetery System and the furnishing of government headstones and markers. The Quartermaster General arranges for interment in national cemeteries and for headstones for deceased Air Force members.

The Army Ordnance Corps has also continued to support the Air Force with service and supplies since 1947. Ordnance depots perform receipt, storage, shipment, surveillance, maintenance, modification, and demilitarization of Air Force-owned common and peculiar ammunition. Ammunition inspectors are trained and made available to fill Air Force positions. Ordnance Corps also supplies the Air Force with a large inventory of Air Force ammunition, and provides technical assistance, including inspection, training, and instructions for repair. Ordnance procurement for Air Force includes fire-control equipment, certain weapons, ammunition, and explosives.

Chemical warfare support is the special province of the Army Chemical Corps. Colored smoke grenades and smoke pots used by the Air Force for emergency signaling are filled at Chemical Corps arsenals. The Chemical Corps supplies flame bombs and incendiaries to the Air Force, and stores and maintains Air Force-owned munitions that are filled with chemical agents. Procurement for Air Force includes chemicals for decontamination, wetting and impregnating agents.

Communications support furnishes another outstanding example of interservice support. Although the global communications systems of the services are separately managed, they employ compatible procedures, they are interconnected to permit exchange of traffic, and they share circuits wherever practicable. The Army Signal Corps' globe-circling STARCOM network is available for use by all services, and it includes such facilities as the three continental Relay Stations and the Pacific System, extending from Hawaii to the Philippines. The Army Signal Corps also supplies the Air Force with certain communications equipment and material such as reels and spools, telegraphic code trainers, some types of radiac equipment, antenna testers, calibrators, capacitor testers, coil testers, and meters.

Army medical treatment facilities throughout the world give considerable logistical support to the Air Force each year in the form of medical care provided to Air Force personnel and their dependents. During the calendar year of 1960, an average of 711 military and 607 dependents received treatment daily as inpatients (occupying beds) in Army hospitals. During the same period, the daily average number of 392 Air Force personnel and 1,510 dependents were treated as outpatients by all facilities.

Single Manager Role

In recent years the development of the single manager plan has provided all military departments increasing opportunities to serve each other logistically. Between 1955 and 1960 the Secretary of Defense assigned six single managerships to the Department of the Army. Under this plan, the Secretary of the Army has had the assigned responsibility of providing to the entire Department of Defense—including the Air Force—the commodities of subsistence, clothing and textiles, general supplies, construction supplies, and automotive supplies. In addition, the Department of the Army has been the assigned single manager for traffic management.

On August 31, 1961, the Secretary of Defense announced the decision to establish the Defense Supply Agency (DSA) to perform the functions of integrated management of common supplies and common supply services for the entire Department of Defense. Existing and future integrated commodity management agencies, including the six Army single manager assignments, came under the DSA by this decision. Consequently the support which has been provided to the Air Force by the Army-assigned single managers will in the future be a function of DSA.

Operation of the Military Subsistence Agency (MSSA) illustrates Army support of the Air Force through single manager assignments.

Its mission is to buy, store, distribute, and inspect wholesale food supplies delivered to all installations of the Army, Navy, Air Force, and Marine Corps in CONUS and for shipment to oversea installations.

MSSA's purchase from 3,100 American food manufacturers, processors, and dealers in the past fiscal year were $689 million representing approximately 173,000 contracts.

Buying is conducted at the 10 regional headquarters of the agency (in Seattle, Oakland, Los Angeles, Fort Worth, New Orleans, Kansas City, Chicago, New York, Richmond, and Columbia, S. C.). Regional buyers keep in close touch with seasonal markets and obtain quality foods from the most economical sources.

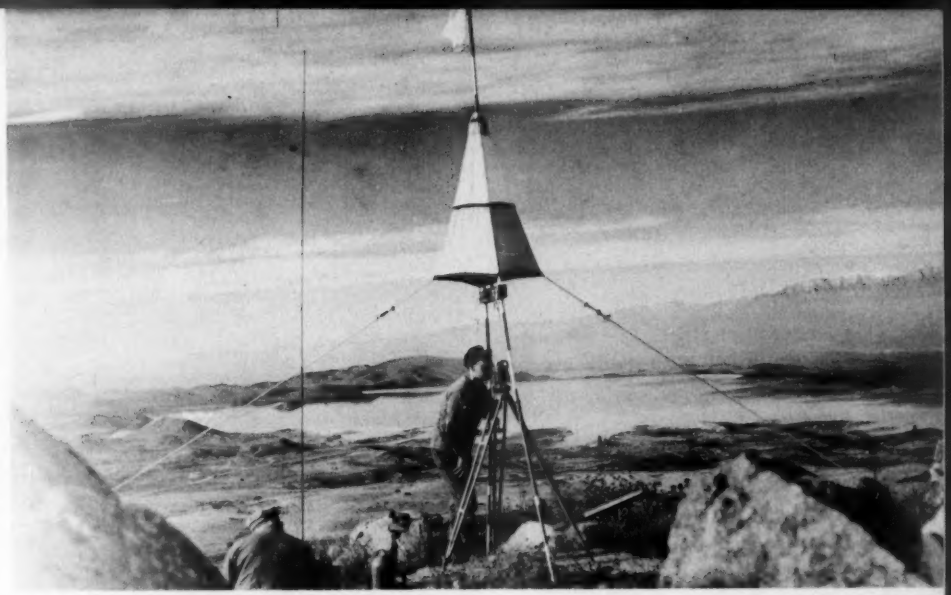
Food purchases by the Air Force from MSSA in FY 1961 were $154 million. In addition, the agency estimates that the Air Force obtained an additional $66 million of food items from Army stocks located principally overseas which were supplied by MSSA. In all, almost one-third of MSSA's $704 million sales to the services in FY 1961 reached Air Force consumers.

Operational rations for the Air Force are bought by MSSA. Included are the in-flight food packet; precooked frozen meals; and the arctic, tropic and individual survival food-packets.

MSSA also writes Purchase Notice Agreements published in Supply Bulletins 10-500 and 10-600. Air Force commissary officers use these publications to buy brand-name items for resale direct from manufacturers and qualified dealers.

It is emphasized that MSSA obtains food supplies at the wholesale level. It purchases to meet requisitions by Air Force installations. Requisitions, in turn, are based on menu requirements set up by the Army-Air Force Master Menu Board.

The other single managers have provided service to



Survey site on an isolated Alaskan mountain. Surveyors of the Army Engineers work with the Army Map Service in the preparation of charts which will be available for use by the Air Force.

the Air Force in a similar manner.

Since 1956, the Air Force, together with the other three services, has been obtaining its clothing, textiles, footwear, and equipage from the Military Clothing and Textile Supply Agency (MC&TSA) in Philadelphia. MC&TSA spends approximately $250,000,000 on contracts each year in support of its mission.

Supplies procured for the Air Force, MC&TSA's second largest customer, include clothing, textiles, footwear, tents, certain special-purpose flight clothing, and many other personal items.

The MC&TSA Standardization Program illustrates how efficiency and lower costs of goods benefit all military services. The Air Force participated in a project recently which reduced the types of fatigue uniforms used by the Armed Forces from eight to two. Resulting savings are estimated at $3,000,000 annually.

MC&TSA serves as wholesale supplier of clothing and textile items for all the Armed Forces. It also meets special urgently needed requirements of individual services. Recently, for example, the agency undertook a "crash" program to procure the new lightweight blue uniform for the Air Force. The new blues are now being phased into the supply system.

The Military Traffic Management Agency (MTMA) directs and controls military traffic by commercial transportation within the United States; it also controls use and operation of military owned surface transportation which may be required to supplement commercial transportation. Last year MTMA handled stateside Air Force shipments totaling 14.7 million short tons of cargo and 846,000 passengers traveling via commercial transport facilities.

Cooperation in Procurement

In addition to these single manager operations, the Army has also provided support to the Air Force through single department procurement assignments and coordinated procurement agreements.

Altogether 36 Commodity Classes have been assigned for single department procurement. The Army purchases 17 of these commodity classes approximately 338,814 items, many of which are for use by the Air Force. A good example is the new M-14 rifle and the 7.62 mm. NATO standard cartridge.

By coordinated procurement agreements between the Army and the Air Force, the Army is the purchasing agency for the Air Force for certain items of supply. This enables the Air Force requirements to be combined with those of the Army, promoting price savings through quantity purchases and reduction of administrative costs.

In addition to inspections provided by the single manager organizations, Army also furnishes inspection services to the Air Force in the procurement of items peculiar to chemical warfare, to ammunition and to construction in which Army special skills are utilized. The three military departments perform these procurement inspections for each other without charge to make best use of special skills at a minimum administrative cost. As of December 31, 1960, the Army was also conducting inspection in nearly 1,000 plants for the Air Force on materiel being procured directly by the Air Force.

Local Logistics

No discussion of interservice support would be complete without mentioning the great number of local activities performed for the Air Force by Army installations throughout the world.

Local support by Army chaplain offices, dependents' schools, bakeries, dry cleaning plants, supply rooms, shoe shops, utilities installations, commissaries, fire stations, clothing stores, motor pools, post offices and exchanges is commonly provided to Air Force members at Army installations overseas.

Whether support rendered consists of constructions of vital missile bases, wholesale supply management, or routine housekeeping activity, logistic support among the military services is teamwork essential to the national security.

These Things Happened

FRIENDLY BIRD

Geiger Field, near Spokane, Wash., had an unexpected visitor recently in the form of a Blue Heron which landed on the main runway and settled down. The base veterinary office was summoned to remove the feathered obstacle to aviation. SSgt. Gerald Scroggs took the fowl to the clinic where close examination revealed no sign of injury or illness. "Just tired," pronounced Scroggs, "we'll let it rest."

After the passage of a reasonable time for rest and recuperation, the bird showed no inclination to leave. Scroggs gave it an encouraging push, but it quickly scrambled back to his side. Then he tossed it into the air, where it flapped its wings and again settled down at his feet. After this ritual was repeated a number of times, Scroggs finally hit on a solution. He carried the bird to a nearby pond, placed it carefully on the bank—then turned and ran.

UNFRIENDLY CAT

The following advertisement appeared in the classified section of the Daily Bulletin at a base overseas.

"Lost: Bobcat, age one year, disappeared from 2d floor balcony in housing area Wednesday night. It looks like an ordinary black and white cat with short tail and long hind legs. Answers to the name Bimbo, but is not friendly. If seen, please notify Sergeant . . . at . . ."

FRIENDLY PROVIDENCE

During a period of prolonged drought at an overseas base, authorities set up a line of 16 empty oil drums in the housing area to dramatize excessive use of water by families. No sooner were the drums in place with a large sign behind them than — you guessed it — rain promptly fell, depositing more than three inches of water in each barrel.

FRIENDLY DOG

Blacky, a sentry dog stationed at Chateauroux Air Station in France, has been sent home to Sweden for discharge. Blacky's trouble is, she just likes people. In the picture Blacky bestows a kiss on a Swedish soldier passing through the base after serving with the U.N.

LETTERS TO THE EDITOR
continued

. . . Blanchard followed suit with a tricolor." The date given for the flight is January 7, 1785. If my history is correct, Blanchard must have been blessed with amazing foresight as France did not adopt the tricolor until 1789.

Chaplain (Capt.) N. F. Lang
Castle AFB, Calif.

● *Bill Kinney, the red-faced author, pleads force-of-habit as an excuse. Jeffries' diaries simply refer to "flag," "ensign," and "banner" of the balloonist's native France. "Tricolor" was strictly a case of Mr. Kinney seeking a suitable synonym — one which obviously was not quite as suitable as he first believed.*

Sir: I believe the aircraft you have pictured on page 24 of the August issue is incorrectly identified. Your caption calls it a Fiat G-91. If you look closely, I think you will find it is an F-84F.

A3C Richard A. Urauitch
Bloomington, Ind.

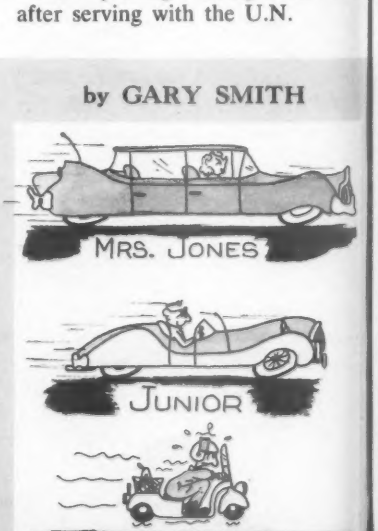
Sir: Not only is the aircraft pictured on page 24 incorrectly identified, but the practice shown is hardly in keeping with attempts to avoid foreign object damage. May I suggest a brief poem?

"Don't tossa you hat, Luigi,
Causa this flame you might squeezi—
OUT!"

Lt. Rodney Guidry, USN
Sandia Base, N. Mex.

● *To readers Guidry, Urauitch, and others who noted the error and took the trouble to write, thank you for bringing the error to our attention.*

by GARY SMITH



R and D OBJECTIVES:

Simple, Effective and Reliable Equipment

by Lt. Gen. ARTHUR G. TRUDEAU
Chief of Research and Development, U. S. Army

TODAY THE U. S. is engaged in a deadly struggle with Communism for national survival. The challenge of Communism, as comprehensive as it is critical, spans the economic, social, and political areas of action as well as the military. The choice is between freedom and slavery.

To meet this threat, the U. S. must stay strong—economically, militarily, and morally. To stay strong militarily, we must depend as never before upon the imagination and boldness with which we acquire and utilize new scientific discoveries and industrial techniques for our national defense. We have chosen not to compete with the Communists on a weapon-for-weapon basis. Rather, we aim at achieving and maintaining a clear qualitative superiority, at the same time keeping within bounds of economy and time.

There was a time when the military services could develop and produce a weapon or a piece of equipment and use it until the day it wore out. That day is gone—for all services. While the horse and lance remained a major weapon system for 2,000 years, it is doubtful if the tank and manned combat airplane—as we know them today—will last a hundred.

We are making an effort right now to forecast and develop the equipment our Army forces will need in the period 1970-1980, and much of it will be radically different from anything any of us has ever used. One of the objectives of today's R&D is to produce the end product in the face of ever-zooming costs and unending obsolescence. If we are going to save this nation and the world in the gigantic struggle of our time—freedom against slavery, order against chaos, then we are going to have to conserve both time and money. The Army is accomplishing this goal by insuring that our future equipment be simple, effective, reliable, and as inexpensive as possible. We are in the Volkswagen not the Rolls-Royce class. We want a good design, initially. We want function not frills.

We recognize that there are certain factors which are in normal opposition to each other that must be reconciled or reversed to make this concept work. As a general rule, a cheap item is not always a reliable one; similarly, simplicity does not always meet the requirements of effectiveness, nor does light weight necessarily allow retention of reliability. But these opposites can and are being made to operate in harmony.

Since World War II there has been an increasing tendency to develop equipment along more complex and sophisticated lines. This has led to increased cost, decreased reliability, and untenable maintenance problems for the using troops. The more complex the system, the more difficult for human action to adapt the device to the military environment. Some weapon planners persist in developing systems of fantastic complexity. The result can be an amazingly sophisticated device of truly marvelous ingenuity, but at terrific cost and little practical value on the battlefield. This is a trend which must be resisted at all costs.

Perhaps one of the most outstanding examples of what we in the military are after can be found in the M-3 submachine gun of World War II. This was one of the simplest, yet most dependable firearms this nation ever developed. It cost only some $30 and was mass produced from non-critical materials. It replaced the far more sophisticated Thomson submachine gun which utilized critical material and cost over $200. But the M-3 did the job for which it was designed.

Some of the ways and means to attain these qualities of simplicity, ruggedness, and cheapness are now available to us. Others are not, and this is one reason why the Army is spending some 30 million of its annual one billion dollar RDT&E (Research, Development, Test & Engineering) program on pure research. This program is carried out in more than 550 laboratories, univer-

New vehicles, like this 5,000-gallon POL carrier, are being developed to support Army's new weapon systems.

sities, and industries and 80 Army and other government installations. Our approach is most emphatically an Armed Forces team approach. What we discover we pass on to the other services, and similarly they feed the products of their research to us. The major objective in the Army's research and development program is not end items for the Army—or for the Navy, Air Force or Marines—but for the defense of our nation, our allies, the whole Free World.

One of our most important areas of basic research is materials. We know that our engineering design prospects are intimately bound up with discovery of new materials with greatly enhanced properties—conducting, semi-conducting, insulating, magnetic and structural —and also important—with improvement of existing materials. In materials research, we are working on a variety of approaches—in plastics, ceramics, pyrogenics, and metallurgy.

It is important to point out that metallurgy is a field that has seen tremendous advances in the last 10 years and can be expected to surge beyond the boundaries of our imagination in the next few years. New metals with amazing characteristics are being created to exploit extremes of temperatures, pressures, and purities, which we are encountering or using in the space age.

For example, it is estimated that within the next 10 years we shall have beryllium alloys with the strength of steel, but one-fourth the weight. Shortly thereafter will come plastics and ceramics with the same strength-weight characteristics.

These and other research-sparked developments will rebound to the benefit of our civilian industry and commerce as well as to the military—reshaping our pattern of living in the decades that lie ahead. Missiles, vehicles, and electronic devices will all benefit from such advances.

Research efforts are also underway to bridge the gap between metallurgy and solid state physics. Rich dividends, here, will permit us to chain-link large molecules to act as electronic circuits, giving us measures of increased reliability and space accommodations in our guidance and other electronic systems almost too fantastic to imagine today, and instead of having to work with materials available we will be able to make the materials we want.

How many of us in these days of wondrous advances remain impressed by the fact that electronic parts have been reduced in size by modular concepts so that now instead of 7,000 parts per cubic foot, we can put 350,000 parts in the same space? Now, even this figure can be increased by a factor of 10 in certain fuze applications, and using solid circuit techniques—or "molecular electronics"—even this is only a beginning. Just around the corner of tomorrow I predict we shall see wristwatch radios the size of an after-dinner mint.

Other significant basic research in medicine, chemistry, or unusual power sources—such as the nuclear reactor, the fuel cell, the thermionic converter, or the magnetohydrodynamic process — which our Army is conducting is too numerous for me to cover in the space of this article. But what I have covered should indicate that basic research is an essential ingredient of potential military power as opposed to military power in being.

These advances illustrate, moreover, the kind of basic research effort which is necessary to feed the insatiable appetite of applied research and development, for without new knowledge—without new science—applied research and development is limited to product improvement. Product improvement, important as it is, will not put us out in front, where we belong, or keep us there.

Let us look now at the general areas of interest in our applied research and development effort in the classic fields of military endeavor—firepower, communications, and mobility—the three fields in which any military force must excel.

Firepower is always a critical part of any service R&D program, and weapons which we in Army R&D develop are available to the Air Force or the Navy and Marines. Our Ordnance Corps has been the developer of aerial bombs and fuzes, as well as pyrotechnique and photoflash devices used by the Air Force. All machine guns and automatic weapons used by the Air Force have been developed by Army Ordnance. These include such items as the M24 20-mm. cannon which was used on the B-36, the M39, and the famous *Vulcan* 20-mm. M61 aerial cannon. Today the same talent and know-how are available for similar projects for its sister service. We are developing improved rifles and other small arms for Army use, but these products will be available to the Air Force, and other services.

In order to provide a ground defense for the combat soldier against attacking enemy aircraft we have under

M116 Tracked Amphibious Cargo Carrier can transport 11 passengers or 1.5 tons of cargo at 40 miles per hour on land and about five miles per hour in water.

development a shoulder-fired missile called *Redeye,* which utilizes the heat-seeking infrared process to home on its target. *Redeye* can be a useful weapon in the protection of airfields and bases against low-level strafing and bombing by enemy aircraft. Also in the air defense field is *Hawk,* our homing-all-the-way-killer missile—the bullet with a brain. It is designed to provide low-level defense of personnel, equipment, and installations against enemy missiles as well as aircraft.

In *Nike-Zeus* we have the only anti-ICBM missile system presently under development anywhere in the Free World. The U. S. Air Force is materially assisting us in this project by providing targets which will be fired early next year by the Air Force from Vandenberg AFB, Calif. Target cones launched by *Atlas* boosters will streak down the Pacific Missile Range and *Zeus* missiles from Kwajalein Island will be launched to intercept them.

We are developing many types of improved surface-to-surface rockets and guided missiles to supplement or replace those now operational. One of these is *Little John,* an air-transportable, highly mobile weapon with an atomic capability. *Pershing* is our biggest missile, designed to provide the Sunday punch for our field Army. It has been designed to be rugged, reliable, and mobile. Our newest version incorporates the missile on a full tracked vehicle called a TEL—transporter, erector, and launcher. This lightweight, electro-mechanized launcher erects the missile into firing position, aligns it with the target, and supports it accurately until it is fired.

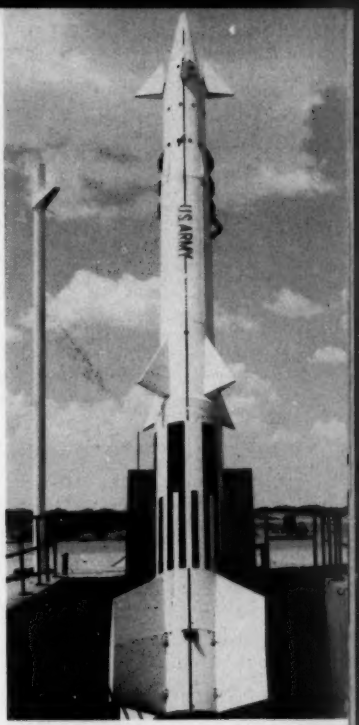
The Army is responsible for coordinating in detail all military biological and chemical research and development. We are responsible for all basic and supporting research, as well as for the development of Army items and those common to all services such as masks. In view of the fact that the Soviets are known to have large stocks of chemical and biological munitions, we have stepped up our research so that we can meet and counter any such threat.

Among chemical counter-weapons now under Army R&D scrutiny are two classes of agents which only temporarily incapacitate, with no permanent after effects. One type disturbs the normal behavior pattern of an individual, producing either apathy, fear, or mental disorientation; the second works physically by causing temporary blindness, violent nausea or paralysis.

Next—communications. Without top-flight communications, effective command control is impossible. As never before, the Army as well as the other services, has need of greater traffic capacity, greater speed, greater reliability and more versatile facilities. We have a pressing need for rapid collection, assimilation and analysis of millions of bits of data. Our existing facilities today are tortured by a disease—"over-traffic!" We need a cure—a quick and effective one. We think we have got the prescription—it's the satellite circuit!

The Army concept of a *UN*iversal *I*ntegrated *COM*munications System, which we call UNICOM, represents that cure. Development of this concept for an integrated global communications system will provide

Now under development, the Nike-Zeus anti-missile missile will be tested next year against target cones launched by USAF Atlas boosters from Vandenberg AFB.



Prototype model of Redeye, a shoulder-fired weapon to provide the soldier with protection against aircraft. Missile employs infrared system to home in on target.

personalized services, high-speed automatic switching, and any mode of transmission such as video, data, facsimile, voice and records communications on a completely secure basis.

Other systems, however great their promise, all are over-shadowed by the tremendous possibilities of satellites—orbiting earth satellite—for the relay of audio and video communications. With realization of UNICOM should come the use of communications satellites as repeaters—corollaries of the ground stations.

Satellites will probably never replace all of the various existing systems of communications. However, they will ultimately provide a reliable and efficient means of spanning the oceans and polar regions, of providing truly global communications—for both military and commercial purposes.

In the mobility field the Army has come up with a good example of retention of simplicity and resistance to all efforts at sophistication. It is the "GOER." The Army requires a cargo vehicle which is capable of real cross-country movement under the most difficult terrain and field conditions. Rather than go into a costly and time-consuming development program, we took a basic vehicle from the construction industry, authorized only the use of commercial components, resolutely resisted several attempts to sophisticate it, and came up with a useable product in a very short time. Think of the applications such a vehicle can have in supplying Air Force installations in areas where good roads are few.

We have other new ground vehicles soon to be operational to back up our powerful new weapons sys-

tems. These vehicles will be great improvements over today's tanks and armored personnel carriers, in size, weight, engine performance, and fuel consumption. Where we feel it is necessary, and not just in the nice-to-have category, we will incorporate both swim and air-transportable capabilities.

An example here is the M116 Tracked Amphibious Cargo Carrier. This vehicle can transport 11 passengers or 1.5 tons of cargo, it is capable of traveling 40 miles per hour on land or almost 5 miles per hour in water. Wherever possible we have used aluminum to reduce weight yet maintain ruggedness.

The Army also looks to the air as a means of giving our forces greatly increased tactical as well as strategic mobility and to increase our combat surveillance capability. The Army is not trying to take over any of the tactical air command missions; we are simply directing our efforts toward the areas where *no* aviation capability exists. What most people fail to realize is the fact that there is a wide area within the current roles and missions where unfilled requirements for aviation exist. For example, the Army's most pressing need is to match its target acquisition capability with its firepower. In this regard our *Mohawk* program, supplemented with the drone program is only a first step toward filling the gap.

The *Mohawk* surveillance aircraft is one of the most recent developments in Army air vehicles. The gross weight is approximately 13,000 pounds and it will cruise at 200 knots in performing a 200 nautical mile radius-of-action mission. The distinctive feature of this aircraft is its propulsion system which consists of two turboprop T-53 Lycoming power plants. We are on the verge of increasing the time-between-overhaul of these engines—now about 150 hours—to 500 hours. *Mohawk* will give the battlefield commander the capability for round-the-clock battlefield surveillance and target acquisition through electronic means.

We are seeking to enhance our mobility by developing true air vehicles that will fly just above the "nap of the earth," permitting the combat soldier of tomorrow to overcome terrain obstacles such as mud, swamps, ravines, rivers, and forests. This type vehicle will have the take-off and landing characteristics of the helicopter, coupled with the advantages of the fixed-wing aircraft in forward flight. It will fly fast or slow, and *quietly* just above the battlefield.

We are working with the Air Force and the Navy on this tri-service VSTOL program. Some of our test vehicles of this program are the *Doak*—which uses rotatable ducted fans, and the Piasecki flying platform which employs ducted fans for propulsion and has conventional helicopter contacts. While this is still in the research stage we have established the feasibility of this type of air movement.

There have been numerous other projects where Army R&D has worked in close cooperation with the Air Force to further our mutual objectives. For example, the Air Force provided us with the booster that launched the *Score* and *Courier* communications satellites. The Army and the Air Force have worked closely in the field of meteorology, and in development of air traffic safety devices and other in-flight and on-the-ground aviation aids.

I want to again emphasize that our objective in Army R&D is not simply end items for the Army or any one service. We aim to give our nation the best our talents and resources will allow, in every area of R&D. We will continue to help our sister services and we know that the base hits from their bats will assist in scoring our runs in the combined service struggle to keep our country on top of the league.

In the GOER, the Army has developed a cargo vehicle capable of cross-country movement in roughest terrain.

The Army's Ready Force

by Lt. Gen. T. J. H. TRAPNELL
Commanding General, Strategic Army Corps

Editor's Note: In late September, Secretary of Defense Robert S. McNamara announced that STRAC units and USAF Tactical Air Command would be merged to form a new unified command.

The time is any time you—the reader—choose to imagine. The enemy situation is a communist-generated "squeeze-play" in a small country traditionally friendly to the Free World. The requirement for action to assist that country is one of urgency. A decision to assist is made at the appropriate U. S. governmental level and the order is issued to the Army's Strategic Army Corps (STRAC) and the Air Force's Composite Air Strike Force (CASF). Within one hour the initial airborne-assault elements of this two-fisted force are on the way to the affected area. Within hours the exact amount of force necessary to accomplish the particular mission is enroute.

STRAC—the Army's answer to communist-inspired brush-fire type actions—has reacted with the rapidity necessary to prevent the loss of another defenseless nation to the spread of communism.

What is STRAC, where is it located, what is its mission, of what does it consist, and how is it trained?

STRAC is the continental U. S. based ready force of the U. S. Army. Its mission is to meet an initial emergency situation anywhere in the world or reinforce troops, U. S. and allied, already committed against an aggressor. STRAC remains at all times operationally ready for conventional, limited, or nuclear warfare.

Headquarters, XVIII Airborne Corps, at Fort Bragg, N. C., is the STRAC Headquarters. STRAC forces include two airborne divisions and one infantry division, as well as numerous other combat and logistical support units.

STRAC's three major combat units are the 101st Airborne Division at Fort Campbell, Ky.; the 82d Airborne Division at Fort Bragg; and the 4th Infantry Division at Fort Lewis, Wash.

In addition, STRAC forces include the 2nd Infantry Brigade, Fort Devens, Mass.; Combat Command A, 1st Armored Division, Fort Hood, Tex.; 3rd

They may look before they leap, but leap they will; whether the rushing terrain is snow and ice covered or a clearing in a tropical jungle. At the door, each man's moment of truth . . . next, the slap of the slip-stream, and seconds that stretch to eternity . . . the billowing of hundreds of canopies; and then the ground. In minutes the men move out, a deadly effective fighting force.

Armored Cavalry Regiment, Fort Meade, Md.; and XVIII Airborne Corps Artillery, Fort Bragg, N. C. Two missile commands have STRAC status—the 2nd U. S. Army Missile Command (Medium), Fort Carson, Colo.; and the 3rd U. S. Army Missile Command (Air Transportable), Fort Bragg, N. C. In addition, there are some 40 combat support units, battalion and company size, that round out the STRAC combat troop list.

To provide logistical and administrative support, STRAC has 324 administrative and logistic support units that are stationed at 54 different military installations in the continental United States. The 1st Logistical Command, Fort Bragg, N. C., is designated as the headquarters to coordinate the planning for STRAC's logistical support and to operate the logistical support system when STRAC is committed. Finally, 62 additional support units and detachments may be organized from CONUS operating forces should a STRAC mission require them.

The STRAC concept is a weapons system which in the foreseeable future will not become obsolete. Weapons, tactics, and politics may change, but unless the basic nature of man is changed, there will be a continuing requirement for troops to move into troubled areas to answer the call for assistance from a friendly nation or to reinforce our deployed forces. STRAC can furnish the necessary *degree of force* to meet any situation, and, once committed, STRAC, together with necessary support, can conduct sustained combat operations for an indefinite period of time.

To facilitate the most rapid movement of troops and equipment possible, STRAC coordinates planning with the Air Force's Tactical Air Command (TAC) at Langley AFB, Va. When a mission is received for STRAC to deploy overseas, TAC and MATS commit the necessary tactical and strategic troop carrier aircraft. With tactical airlift provided by the Air Force, STRAC has the exclusive capability, with its organic airborne forces, to bypass any natural or man-made barriers and enter an objective area by parachute. STRAC is therefore tri-mobile and can move by air, land, or sea or by any combination of the three.

STRAC's specialty is *immediate response*. This ready-force has the ability to provide, anywhere in the world, a tailored force varying in size from a reinforced rifle company to the entire STRAC. STRAC units are prepared to move *strategically* or *tactically*, wherever and whenever a military force is required. The lead elements are ready to depart their home stations within one hour after the order to move is received, without prior alert notification.

To the 114,000 officers and enlisted men in STRAC, this means constant readiness and continuous and vigorous training. STRAC troopers are tough, highly trained soldiers, ready to move on short notice to any area in the world. This deployment may be a show of force to demonstrate the intent of the United States to honor its treaty obligations, or it may precede sustained combat operations against an aggressor.

Each STRAC unit strives constantly to improve its reaction time while maintaining its high level of training. The commanding general of XVIII Airborne Corps, as the representative of the commanding general of the U. S. Continental Army Command (USCONARC), annually inspects all major STRAC units to insure that they maintain STRAC standards

of combat efficiency and readiness.

In addition to the Army's annual training tests, the STRAC training schedule includes numerous field training exercises each year. Through these exercises, STRAC is able to evaluate its combat efficiency and improve its reaction time. Most of STRAC's operations are planned as training exercises, but some develop from real, rather than simulated conditions in the international situation. For example, during a "Good Will" tour of South America in 1958, Vice President Nixon's safety was threatened by communist-provoked rioting in Caracas, Venezuela. At 1727 hours on 13 May, the 101st Airborne Division was ordered to send a two-company force to Puerto Rico, to be ready if needed to support the Venezuelan government and insure the Vice President's safety. One hour 20 minutes later, 570 officers and enlisted men with their equipment were boarding 22 C-130 aircraft at Fort Campbell, Ky.; 6.5 hours after the order was issued, the lead elements touched down at Ramey AFB, Puerto Rico. By 0630 the following morning the entire force had landed and was available for further orders.

STRAC units maintain this high state of readiness by a training program which included 16 separate major field exercises in 1960 alone. These exercises test STRAC at every level, in all kinds of terrain and climate, and simulate actual combat conditions as closely as possible. Exercise *Banyan Tree II in* March 1960 called for the transport of 2,000 paratroops of the 82d Airborne from Fort Bragg to tropical Panama where they parachuted into maneuvers in which soldiers and airmen from Chile, Peru, Panama, Colombia, and Brazil also participated. In February 1960 the 4th Infantry Division sent 5,000 troops to take part in Exercise *Little Bear,* held in Alaska, to test and enhance STRAC's ability to fight under severe winter conditions.

In November 1960, some 12,000 STRAC troops deployed to Eglin AFB, Fla., where the headquarters and staffs of all major STRAC units participated with the Air Force in Exercise *Southwind,* a joint Army-Air Force command post exercise.

In January and February 1961, STRAC units tested cold weather equipment and tactics in Exercise *Willow Freeze,* held in Alaska. Soon after that, a battle group of the 82d Airborne participated in Exercise *Solidarity,* where paratroops boarded aircraft at Fort Bragg at midnight and jumped into Panama at 0700 hours the next morning—2,000 miles away.

In August 1961, Exercise *Swift Strike,* the largest CONUS-based free ground maneuver since 1941, was conducted in North and South Carolina. More than 30,000 STRAC troops from the airborne divisions, Headquarters XVIII Airborne Corps, and other STRAC units participated.

These exercises test STRAC's ability to deploy rapidly and measure its capability to fight immediately upon arrival in an objective area. Each of the airborne divisions maintains a battle group force in constant readiness. When an alert is sounded, a reinforced company from this battle group, termed the "Immediate Ready Force," moves to its departure airfield and within one hour of receiving the alert begins boarding its aircraft. The remainder of the battle group force can be loaded as quickly as additional aircraft are made available.

Should a national policy decision commit elements of STRAC, reaction time becomes a vital factor. The rapid arrival of STRAC forces in a critical area might accomplish U. S. objectives without actual combat. Such was the case in the rapid movement of Army and Marine forces to Lebanon in 1958.

The speed of STRAC deployment depends upon two essential elements. First, STRAC units must be ready to initiate movement, and secondly, adequate airlift must

Even in sub-zero climates, soldiers of STRAC's 82d Airborne Division must work rapidly and efficiently to remove vital supplies and equipment para-dropped with them. This was Exercise "Willow Freeze," conducted this year in Alaska.

be allocated by the Joint Chiefs of Staff. The amount of airlift and the rate at which the aircraft assemble at designated airfields govern the time in which STRAC can deploy.

Airlift represents the most rapid method of moving a force into an area. STRAC plans provide for two types of airlift operations, *tactical* and *strategic*. *Tactical* airlift operations may involve either *airborne* or *airlanded* assault.

An *airborne* assault includes the delivery of tactical troops and their heavy equipment into an objective area by parachute, ready to fight immediately upon hitting the ground. Such an operation was Exercise *Solidarity*, where STRAC coordinated with Tactical Air Command troop carrier units and moved 1,500 troops 2,000 miles in 7.5 hours.

An *airlanded* assault is conducted when a secure landing field is available in the objective area. Tactical troop carrier aircraft are also utilized in this type of assault.

The C-130 is the most suitable aircraft in the current Air Force inventory for *airborne* and *airlanded* assault operations. With it, STRAC forces can parachute personnel and equipment to an objective and later airland additional forces after hastily prepared assault airstrips become available. STRAC engineer units can construct landing zones utilizing equipment which is parachuted into the objective area with the initial airborne assault echelon.

The second type of airlift operation with which STRAC is vitally concerned is the *strategic* movement of a force by MATS aircraft to a distant intermediate staging base. There, STRAC forces trans-load to tactical troop carrier aircraft for *airborne* or *airlanded* assault operations as required in the objective area. To exercise these capabilities, STRAC conducts training exercises with MATS and TAC units. Exercise *Big Slam/Puerto Pine*, completed in March 1960, is an example of this type of operation. Approximately 20,600 troops and 11,150 tons of equipment were flown, over a 10-day period, from various stations throughout the U. S., to Puerto Rico and back without serious incident. Another example is Exercise *Long Pass* which was conducted in February 1961 and included the movement of a battle group force of the 4th Infantry Division from the U. S. to the Philippines and back.

In order to rapidly deploy major units over long distances, STRAC coordinates with appropriate Air Force agencies. Further coordination is established by which the Air Force provides close air support and air reconnaissance in the objective area, as well as air defense. Incorporation of the *Hawk*, *Redeye*, and *Mauler* air defense systems into STRAC is anticipated in the near future to broaden the air defense capability of the joint-force.

The capability of STRAC to move by air is, as previously stated, limited by airlift allocation. To better utilize the aircraft allocated, STRAC is receiving and testing new and lighter-weight equipment designed for greater efficiency in airlift operations. New equipment which will enhance the capabilities of STRAC are the M 151 quarter-ton truck, the XM-72 anti-tank gun, a Phase II *Little John* rocket, and the XM-79 grenade launcher. An extensive program to replace present components of standard equipment with lighter-weight components is in progress: for example, aluminum parts for vehicles, auxiliary power units to replace prime movers for artillery, and miniaturization of bulky and heavy signal equipment required for the command and control of STRAC forces.

STRAC is literally the immediate, ready "fire brigade" of the U. S. Army. It has been carefully designed to function in conventional warfare with the finest modern weapons available. In addition, the nuclear capability organic to each division, XVIII Airborne Corps Artillery, and the two U. S. Army Missile Commands makes STRAC a formidable force on the atomic battlefield.

With an arsenal of weapons ranging from the pistol to the nuclear warhead, STRAC stands ready *now*. The soldiers of STRAC have the determination, the equipment, and the combat efficiency to present a powerful force for any situation, whether it be a simple street riot or general war. They epitomize the STRAC motto: *S*killed, *T*ough, *R*eady *A*round the *C*lock.

Hawks in their nest, a lethal trio, ready for instantaneous firing.

THE ARMY IN A UNIFIED COMMAND

By Maj. Gen. THEODORE F. BOGART, Commanding General, United States Army Caribbean

THE AMERICAN ARMY first put foot on the soil of Panama, officially, in 1852. Troops of the 4th Infantry transitted the Isthmus from Colon for a change of station to California. The trip took eight days by rail and by foot.

Today, the Army has both feet planted solidly on the Isthmus as it has since 1911 when the first troops of the 10th Infantry arrived for permanent duty and were billeted at a temporary camp on the Pacific side of the Canal.

(It wasn't until 1917, however, that the pressures of a world at war brought the U. S. Army and Navy together in a unified command. That joint command, altered over the years to fit expanding military needs, still stands with the inclusion of the U. S. Air Force.)

Under the overall command of Army Lt. Gen. Andrew P. O'Meara, the Army and its sister services stand watch over the "big ditch." In addition the U. S. Army Caribbean has responsibility for the Antilles Command in Puerto Rico.

In Puerto Rico, nearly 2,000 military personnel carry on the business of training some seven companies of enlistees and draftees from the USAR CARIB's Antilles Command.

The U. S. Army in the Caribbean at the direction of CINCCARIB provides the ground defense of the Pan-

Bridges by the yard, and portable, too. These Latin American military students are but a few of the 10,000-plus who have been through the USAR CARIB schools.

ama Canal and implements the Army portion of the United States policies and international agreements pertaining to Latin America. To carry out those missions, USAR CARIB is authorized 7,500 military and slightly more than 5,000 civilian personnel of whom about 50 per cent are indigenous.

One of the USAR CARIB's major responsibilities is supply. The Army in the Caribbean is party to 45 cross-servicing agreements with the Navy, Air Force, and the Panama Canal Company. The Army is the servicing agent for 30 of these agreements. For example: The Army supplies fixed-wire communications service to the Navy and the Air Force, provides subsistence for the Navy, and laundry facilities for the Navy and the Air Force.

The Army's role in implementing United States policies and international agreements includes the promotion of friendly relationships with our Latin American neighbors, planning for mutual defense of the hemisphere, and providing training facilities and direction for Latin American military units.

USAR CARIB's responsibility for the above important tasks is carried out through the operation of the Army Mission Program in South and Central America. Involved in the execution of this program in Latin America are 16 Army missions, nine of which are associated with the Military Assistance Program.

The major objective of the Mission Program is to assist friendly nations to improve the efficiency and effectiveness of their Armed Forces.

In addition to Missions in the field, provision has been made for specialized training for selected Latin American personnel and units. Currently, military students from 14 Latin American armies are undergoing training at the USAR CARIB Latin American School at Fort Gulick in the Canal Zone. Founded in 1949, this facility provides technical and tactical training for Latin American officers, enlisted men and cadets. In many cases, the cadets are sent to the school for final military instruction prior to commissioning. Instruction is presented entirely in Spanish by bilingual members of the U. S. Army, and by guest instructors from participating countries. Courses available include nearly all curricula from the Army's service schools, but the actual scheduling is contingent upon the desires of the countries sending students. The school has graduated over 10,000 Latin American students, many of whom now hold highly important positions in their home countries.

Most popular of the courses are the engineering, automotive, and military police classes.

At Fort Sherman, the Army operates the Jungle Warfare Training Center. USAR CARIB troops, personnel from the States, and Latin American army men train in the techniques of jungle warfare. Not all of JWTC's graduates are Army men, however. Other U. S.

Geodetic Survey pilot returns to chopper after setting up survey point shelter on a mountainside clearing.

r plans on a dark night in
ense Panama jungle occupy
e men in a map problem.

Inter-America summit meeting, grassroots level. Kids and soldiers make a natural combination wherever they get together to talk things over.

armed forces personnel are trained there whenever their particular mission calls for jungle know-how. JWTC also maintains a zoo of Central American fauna.

On-the-job training is provided Latin American specialists and technicians with the USAR CARIB agencies such as radio and TV network, engineer, ordnance, signal and other technical services in the Canal Zone.

For certain military schooling, USAR CARIB arranges for Latin Americans to attend courses of instruction in the United States. Quotas are allocated for technical courses of training as well as U. S. Advanced Branch schools and the Command and General Staff College.

In the past several years large scale training exercises have been conducted in the Republic of Panama. The most recent of these, "Operation Solidarity," was conducted in March of this year, and included ground, air, and sea forces from the United States, Central and South America.

In July of 1961, USAR CARIB conducted the Second Annual U. S.-Latin American Army Commander's Conference, which was designed to permit the free flow of ideas, mutual problems, and to strengthen the bonds of friendship and understanding among the free nations of this hemisphere.

Sixty-four senior military representatives from 17 countries attended this five-day conference. The result of this unique conference is perhaps best exemplified by one spokesman who said, ". . . this conference forms a solid foundation on which to build a democratic doctrine . . . a plan of action, of democratic ideology . . . against our common enemy—communism."

A prime example of cooperation between the United States and 18 countries and colonial possessions in Latin America is the Inter-American Geodetic Survey, a major subordinate command of USAR CARIB. Known the length and breadth of the continent as IAGS, this agency is engaged in a double-edge program —producing maps that will assist in the economic development of the various individual countries, and also producing maps required for Western Hemisphere defense.

In addition to the important economic, scientific and military contributions, IAGS generates good will between the participating countries and the United States, in an area of some eight million square miles—from the U. S. Mexican border southward to Land's End in Tierra del Fuego. The agency operates in all but three countries on the continent now, and it hopes soon to add programs in the three additional countries of Paraguay, Uruguay and Argentina.

Except for aerial photography, which is handled through an agreement with the U. S. Air Force, all mapping work is done by USAR CARIB experts in combination with specialists from the participating country.

The IAGS Cartographic School in the Canal Zone has graduated nearly 1,000 Latin American students in the various specialties of cartography.

In the promotion of friendly relationships, USAR CARIB stands ready to provide logistical assistance in the event of disaster. Last July, a flood left the people of a suburb of Panama City homeless. The Army provided kitchen equipment, tenting and bedding.

"Person-to-person," "two-way, not 'una via,'" and "to have a friend, be one" are the key phrases of a non-military program that's bringing about a desired evolution throughout USAR CARIB's area of responsibility. These are the slogans and phrases that have emanated from "Operation Friendship," a voluntary project designed solely to achieve friendly person-to-person relationships between the citizens of the Republic of Panama and those of the Canal Zone, with the accent on non-military activities and the individual role of the members of USAR CARIB as personal ambassadors of good will.

In summary, the U. S. Army Caribbean stands ready to provide the ground defense of the Panama Canal. It is also working hand in hand with its Latin American neighbors in a dynamic program of international good will. It is providing military and technical training for Latin American countries. In brief, the U. S. Army Caribbean stands at the crossroads of the world as a link between the military forces of the United States and the nations of Central and South America.

by Brig. Gen. WILLIAM P. YARBOROUGH
Commanding General
U. S. Army Special Warfare Center

SPECIAL WARRIORS OF THE U.S. ARMY

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THE SERIOUS SIGNIFICANCE both of American experience in unconventional warfare, and of current American interest in this branch of the military art, should be of no little concern to Communist strategists. These planners know the power of insurgent movements, for they have incited them often in many lands. Now they face the prospect of having this many-edged weapon turned against them in areas where free peoples wish to remain free in spite of the creeping cancer of Communism.

We Americans are not novices at guerrilla warfare either from the angle of applying its principles or of having them applied against us.

Even before the term "guerrilla" first came into use during the Peninsular Campaign of the Napoleonic Wars, our forefathers here in the New World were already experienced in "unconventional warfare." They had learned from the Indians that conventional military formations and tactics were, under certain circumstances, no match for small groups of warriors who moved silently, struck like lightning, and vanished like will-o-the-wisps before heavy retaliatory measure could be brought to bear.

One of our more famous guerrilla experts was the man who later became our first President. George Washington, as a young officer, was a master of the tactics and techniques which the red men used with such devastating effect in the vast trackless American forests, mountains and deserts.

Acutely aware of the deadly peril that awaited the British General Braddock along his route from Carlisle to Fort Duquesne during the French and Indian War, Washington tried to urge the British to take adequate counter-guerrilla measures. That the gallant, but obstinate, Braddock paid with his life for remaining too conventional is history.

It is also history that when the American Revolution came, British conventional forces were harassed and beset with American guerrillas at every turn. Generals Gage, Howe, Cornwallis, Burgoyne and Arnold all developed a healthy respect for the American unconventional warriors. When Benedict Arnold with regular British forces invaded Virginia, he found himself in such a welter of guerrilla actions that, after burning Richmond, he was forced to retreat to Portsmouth. Cornwallis' forces, weary with fighting the entire civil population as well as Nathaniel Greene's forces, called the Carolinas a "hornet's nest."

So the American guerrilla tradition of today's Special Forces soldier is rightfully his, having come to him across more than 200 years of American experience. His forebears fought guerrilla and counter-guerrilla actions by the hundreds, as the great westward movements took place in our country, and as the tender beginnings of what were later to become vast cities and networks of communications were contested foot by foot, with the guerrilla red man.

Our war with Spain involving Cuba and the Philippines brought in its wake a "pacification" campaign during which our forces matched their guerrilla and counter-guerrilla skills with the Moros of Mindanao.

The feats of the OSS in World War II, of our forces in the Philippines who took to the hills after the fall of Bataan, those of Merrill's Marauders, Darby's Rangers and Frederick's Special Service Forces showed that the breed was not dead but, on the contrary, was as strong as ever.

It is the wartime mission of Special Forces to move into denied areas by land infiltration, across beaches, and by parachute and aircraft, to seek out patriots who wish to fight aggressor forces, and to help them organize, train, and conduct guerrilla warfare. In time of peace or under cold-war conditions such as prevail today, it is also part of the mission of Special Forces to assist friendly governments who so request in the conduct of counter-insurgency operations.

Much has been written about the conduct of guerrilla operations; less about counter-insurgency, al-

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...e of a rugged cliff is one way of taking the enemy by surprise.

...th Special Forces Group climb into a helicopter to make a training jump.

though the fate of the Free World may depend upon how well it can cope with communist-inspired and supported insurgency movements.

Our Special Forces are taught that the most skillful military tactics cannot of themselves solve a true insurgency problem. The roots of insurgency and of resulting guerrilla actions often are deeply imbedded in economic, political, and sociological imbalances which will continue to spawn new insurgency as fast as military measures lop off the old.

Removal of the causes of popular discontent with government, living conditions, and status of personal freedom, together with prospects for a better life, should precede or at least coincide with active military counter-insurgency operations.

Special Forces soldiers are trained to recognize those sources of popular discontent and distress which military skills, equipment, and supplies can help to alleviate. To this end, medical care is gladly and freely given to villagers in remote areas where native doctors are few or nonexistent. Field sanitation is taught to those whose need is apparent and who wish to learn.

Simple engineering operations are undertaken in order to make a bridge safe for ox carts or to drain a mosquito-bearing slough near a village. Special Forces soldiers may use power saws to help natives carve a needed stretch of road through the vines and giant trees of a jungle.

Although the Special Forces soldier undertakes civic actions as an integral part of his mission, he by no means slights his military responsibilities. The major portion of his training is aimed at making him a teacher of the highest caliber. He must be capable not only of teaching non-English-speaking natives his primary specialty, be it weapons, demolitions, communications, or medicine, but must also be competent to teach and perform in three other MOS (Military Occupational Specialty) in which he is highly cross-trained.

It is not always understood even by the military that Special Forces soldiers are not best used directly in guerrilla or counter-guerrilla roles. Since each "A" Detachment of two officers and ten enlisted men is capable of forming, organizing, training, and directing a guerrilla band of up to 1,500 personnel, it is apparent that their talents would be better used in organization and training, than in carrying out the missions themselves.

Discipline within guerrilla bands must be as strong in its own special way as that of a conventional force. Not every regular soldier recognizes the subtle differences between a guerrilla's brand of discipline and that of a traditionally organized Army.

Guerrilla discipline stems often from the personalities of the leaders. It is rigid and inflexible to the extent of being ruthless in certain respects, variable and flexible in others, depending upon the leaders' instinct and knowledge of human nature. Special Forces soldiers must be types who can deal with strong leader-personalities. They must, by their physical and moral courage, calmness under adverse conditions, soldierly qualities, finesse and steadfastness of purpose, inspire respect and confidence in the guerrillas and their chieftains.

Emphasized equally at the Special Warfare Center where Special Forces personnel are trained are military skills and "lifesmanship" as they pertain to the complex civic-military-psychological tasks to which American teams may be assigned world-wide.

Some "washouts" occur early in the replacement training phase, as new personnel suddenly realize that the deadly seriousness of the Special Forces mission leaves no place for playboys, crackpots, or lightweight personalities. Other separations occur when routine security clearance procedures reveal personal information which casts doubt on the individual's character or loyalty to his country.

One area in which the modern American is some-

Special Forces are trained in underwater demolition. Here they board a Navy launch while it is under way.

times considerably less skillful than were his American ancestors is in the realm of fieldcraft. Until a trooper learns how to keep himself warm, dry and healthy in the mountains, forests and jungles, he is more likely to become a casualty through his own lack of training than he is from the bullets and man-traps of the enemy.

Soldiers who have been Boy Scouts and those who are outdoorsmen—hunters and fishermen, have a distinct advantage over those who have not had these experiences.

Although the United States Army provides its Special Forces with the finest equipment in the world, every trained trooper has inside his head the most valuable equipment of all. He can be dropped into a foreign hostile environment in nothing but his underwear, and not only survive, but carry out active military operations against an armed enemy.

He is taught the fundamentals of the art of improvisation, both to supply himself with the essentials to life and health, and to equip himself with a wide array of weaponry.

He is capable of making explosives from a surprising variety of seemingly harmless substances. He knows how to turn natural materials into deadly ambush devices or offensive tools.

He can find nourishing food where an untrained man would starve. He reads nature's secrets in a thousand signs which are unintelligible to others.

The psychological aspect of Special Forces training is emphasized throughout. Before Special Forces teams are introduced into an operational area, psychological preparation among the prospective guerrillas should be undertaken. Special Forces leaders keep constantly before those with whom they are working the objectives toward which their nation is aimed.

Soldiers are taught well the lessons of experience concerning the fatal effect upon guerrilla operations of a hostile populace. They learn the psychological principles involved in obtaining and maintaining popular support for guerrilla bands.

The trained Special Forces soldier who eventually stands ready for deployment as a Detachment member is as fine a representative of the military profession as it is possible to produce. By any test, be it of skills, integrity, diplomacy, or loyalty, he is "tops."

Special Warfare, in its several manifestations, provides a framework for both strategy and tactics which make it possible for the United States to prevent "loss" of any further areas of the Free World to the Communists.

The rising Special Warfare potential geared to the current increase in strength of Special Forces and U. S. Army Psychological Warfare Units is providing the U. S. Armed Forces with a weapon more powerful than nuclear explosives. It is, moreover, a weapon which can be applied selectively with varying degrees of force, and is one which is least likely to result in military "escalation."

The major strength of Special Warfare lies in its capability of enlisting widespread popular support. An enemy army attempting to adhere to a conventional military tactical plan in a "hornet's nest" of active organized hostility, may have to devote so many of its resources to the protection of its flanks and rear that the original plan might require complete re-evaluation and major modification.

Special Forces work in harmony and understanding with elements of the United States Air Force. An Air Force liaison officer is assigned to the staff of the special Warfare Center. Specific Air Force units are in contact several times a week with the Special Warfare Center. Joint training exercises are conducted constantly in order to develop doctrine, mutual confidence, and familiarity with each other's capabilities.

Special Forces work also with the U. S. Navy. A United States Navy Officer is in permanent residency at the Special Warfare Center, like his Air Force counterpart. Underwater demolitions training, cross-beach operations, use of submarines in introduction of Special Forces are planned and practiced jointly.

Scores of experts, military and civilian, in both the practical and theoretical fields of Special Warfare write to and visit the Special Warfare Center. Their contributions are used freely where they have applicability to training and to research and development.

The three Special Forces Groups now in existence are shortly to be joined by a fourth. The time and place of activation have been fixed and personnel are alerted both for cadre and fillers.

The current United States Army Special Warfare capabilities are high and are rising at an exponential rate. This should constitute tidings of great joy for the rest of the Free World.

AIRMAN'S WORLD

CARTS (C-130B Aerial Retrieval and Transport System) provides a new twist in its field by combining the better parts of predecessor units. Linking the Fulton Skyhook and All-American pickup techniques, the new unit encompasses the capability of making surface pickups, from either land or water, and of accomplishing aerial snatches. More important is the built-in ability to aid in multiple rescue of downed fliers. Such crewmen, once located, simply raise nylon cords via balloon. The C-130 passes over, snatches the balloon and reels its catch aboard. Less than seven Gs are exerted on the rescued person. Additionally, 22 may be lifted on a single mission and cared for within the craft.

Veterans Day

Official sources have announced that President John F. Kennedy will speak at Veterans' Day ceremonies at Arlington National Cemetery, Nov. 11.

President Kennedy's attendance will mark the first official appearance of a Chief Executive at the annual Arlington observance since 1953.

The Veterans' Day National Committee, composed of representatives from 18 service organizations, rotates sponsorship of the annual ceremonies between member organizations. The 1961 observance is being sponsored by the Army-Navy Legion of Valor group.

Specialty Testing

Final 1961 cycle for Phase II Specialty Knowledge Testing will be conducted this month in eight career fields.

Air National Guard and Air Force Reserve personnel may take these tests anytime during the calendar month. Regular personnel in overseas areas will be offered the testing opportunity during the week of November 6; Stateside personnel the following week.

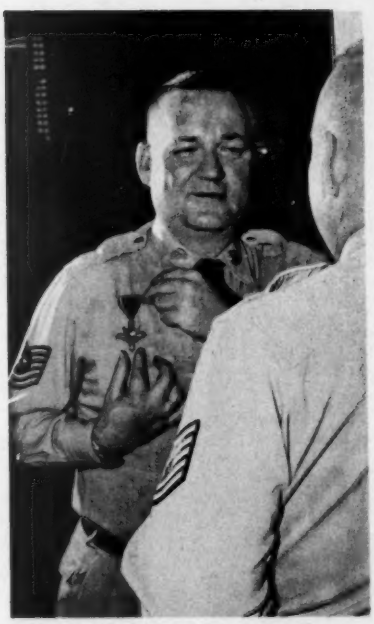
The specialty codes affected are 33 (Nuclear Weapons), 36 (Wire Maintenance), 42 (Aircraft and Missile Accessory Maintenance), 43 (Aircraft and Missile Maintenance), 64 (Supply), 71 (Printing), 90 (Medical) and 92 (Dental).

Bits of Blue

. . . USAF's Flight Test School, Edwards AFB, Calif., has been redesignated the USAF Aerospace Research Pilot School.

. . . THE AIRMAN salutes *Shamal Talk*, the "Voice of 2nd Air Division," formerly published at Dhahran Airfield, Saudi Arabia. The paper recently ceased publication after five years.

. . . The Government recently announced recovery of a weather balloon and radio transmitter near Karachi, Pakistan. The strange twist is that the balloon was sent aloft more than two years ago, and was supposed to burst 16 miles above the earth's surface.



IN AN ARMY SALUTE ISSUE, it is fitting to recognize a belated honor recently bestowed upon USAF TSgt. Virgil A. Coffey, Whiteman AFB, Mo. Seventeen years ago, Sergeant Coffey was an Army Medic, administering first aid to 19 patients during the Battle of the Bulge. At the battle's height, Pfc. Coffey was called upon to defend his charges with a submachinegun, and killed eight enemy soldiers in his spirited defense. Decorated with the Distinguished Service Medal for his bravery, Coffey lost the medal while still overseas. Recently, however, he was presented with a new medal to replace the one he lost.

Aerospace Library

HISTORY

Eugene M. Emme, National Aeronautics and Space Administration historian, has authored *Aeronautics and Astronautics, 1915-1961,* a chronology of American space exploration since the early days of WW I. It is available from the Government Printing Office for $1.75.

GPO has also released the first volume of *The Service of Chaplains to Army Air Units, 1917-1946* ($3.00). It was written by Chaplain (Maj.) Daniel B. Jorgenson (USAF) and emphasizes the role of the individual chaplain.

American Aviation Publications has released its 42nd annual *Aerospace Year Book* ($10.00). A photo-narrative style publication, it covers both military and civilian aviation and space efforts.

Zeppelins Against London relates the story of WW I German bombings against the English capital. It was authored by Kenneth Poolman (John Day, $4.50).

RELATED READING

William M. McGovern has written *Strategic Intelligence and the Shape of Tomorrow* (Regnery, $4.00). It examines the processes of gathering intelligence information and utilizing it to predict future events.

In the same general area is *Combat Intelligence in Modern Warfare.* Lt. Col. Irving Heymont, USA (Stackpole, $6.00). Colonel Heymont concentrates on the military aspects of this specialized field.

Street Without Joy, Bernard Fall (Stackpole, $4.95) relates the story of combat operations in the jungles of Indochina and analyzes how that war was fought and lost.

PAPERBACKS

The Divine Wind: Japan's Kamikaze Force in WW II, Capt. Rikihei Inoguchi and Comdr. Tadashi Nakajima with Roger Pineau, Bantam.

Space Science, Lloyd Mallan, Fawcett.

Five Down and Glory, Maj. Gene Gurney, Ballantine.

Strategy for the '60s, edited by Jay H. Cerf and Walter Pozen, Praeger.

Man in Orbit, Joseph N. Bell, Avon.

First American Into Space, Robt. Silverberg, Monarch.

Rocket Development, R. H. Goddard, Prentice Hall.

Night Flight, Antoine de St. Exupery, Signet.

Blitz on Britain, Wing Commander Asher Lee, Four Square Books, Acme News Co.

You Ask It

Who administers the national cemeteries and to whom should burial application be made?

They are administered by the Army and the Department of Interior through superintendents of national cemeteries. Application should be made to the superintendent of the cemetery in which burial is desired.

Since I bought my home under the GI loan guaranty my family has increased to the point where I need to add a room. Is it possible to also get a guaranteed loan for this purpose?

Yes. Such loans may be made for the purpose of alterations, repairs or improvements necessary for the protection of the property or to improve livability or utility. However, the loan must be made by the organization which holds your present mortgage.

Can an improvement loan be obtained at the same time as the basic loan under the direct loan program?

Under the provisions of this program, you may apply for one to cover the cost of your home and another to finance improvements simultaneously. However, combined, they may not exceed $15,000.

Where are the VA insurance offices located?

There are three: the VA Center, Denver, Colo.; the VA Center, St. Paul, Minn.; and the VA District Office, Philadelphia, Pa.

Is it true that GI loan deadlines were recently extended?

Yes. The new deadlines are July 25, 1967 for WW II veterans and January 31, 1975 for Korean veterans. Full details are available through VA.

My veteran brother died recently and I have just discovered that I am his insurance beneficiary. Is there a time limit within which I must file to obtain payments?

Usually VA sends the proper forms to the beneficiary upon learning of a veteran's death. However, there is no limiting date for applying for these payments.

I have just found out that VA will pay part of a veteran's burial costs. My son died in 1956. May I make application for this aid now?

No. While VA will pay up to $250 of such costs, the claim must be filed within two years after burial or cremation of the body.

I recently heard someone talking about a veterans' writing contest. Can you give me more details?

That was probably with reference to the Hospitalized Veterans' Writing Project, sponsored by Theta Sigma Phi, the national sorority for women in journalism. It is restricted, however, to veterans who are patients in VA hospitals.

LAST IN A SERIES

Since late in 1918, 47 Air Force men have been awarded this nation's highest military decoration . . .

In the Name of Congress

by SMSgt. HAL BAMFORD

ON SEPTEMBER 25, 1918, Lt. Edward V. Rickenbacker attacked a flight of seven German aircraft and destroyed two of them.

Although 13 years passed and four other men were named as recipients of this nation's highest decoration before "Captain Eddie" was so honored, this event stands as the introductory exploit in USAF's Medal of Honor historical annals.

Through the Korean conflict, 47 Air Force-associated fliers have been awarded this supreme decoration. Only 15 have lived to tell their tale. Captain Rickenbacker is one of these.

This USAF Roll of Honor spans 33 years. Four of the decorations were awarded during WW I, four during Korea, 38 during WW II, and one between wars—that of Charles Lindbergh, solo conqueror of the Atlantic.

The editors of THE AIRMAN consider it a signal honor to have brought the story of these 33 years and 47 men to the attention of Air Force members. Their stories, which have appeared in these pages through more than three years, reveal a tradition of bravery and intrepidity.

In the past, the tales have been only sketchily told. Much confusion has existed as to the exact length of the list and even to photos of the honored fliers.

For years, official sources insisted that the roll contained but 46 names. Through diligent research, it has now been established that Lt. Erwin R. Bleckley rightfully belongs with those previously listed.

Lieutenant Bleckley was the observer for Lt. Harold E. Goettler on October 6, 1918, during an airborne effort to relieve the men of the famed "Lost Battalion" in the Argonne Forest. Both men sacrificed their lives in this heroic but futile effort.

Because of the fact that Bleckley was listed on military rosters as a member of the field artillery, he was long ignored on Air Force Medal of Honor listings. However, from August 20, 1918, until his death, he served as an aerial observer with the 50th Aero Squadron after completing the Aerial Observer's School at Tours, France, earlier that same year.

A friendly letter from retired Lt. Gen. Ira Eaker provided the clue which led to Bleckley's confirmation. He noted that many WW I fliers were members of other service branches. For example, General Eaker, himself, was officially listed as an infantry officer during those early Air Force years.

An even more bizarre oversight was uncovered much later in the series. More than a year after it had been featured, a letter arrived questioning the photo which accompanied the story of Lt. Jack W. Mathis. Mathis died at his post on March 18, 1943, after a successful mission over Germany.

The editors accepted the photo which was forwarded from official sources and published it with the story which appeared in the June 1959 issue. Months passed before Capt. Van Smith questioned its authenticity. A double check revealed that the picture was that of a Jack Wells Mathis—not the Jack Warren Mathis who had received the Medal.

The erroneous photo had been used for more than a decade in official releases, much to the continued embarrassment of Jack Wells Mathis who currently lives in Texas.

The photo which accompanied this article was forwarded to this office following clarification of the error and is currently being used as the official release. It was supplied by the Information Office at Goodfellow AFB, Tex., the native state of both men.

The Mathis story, itself, has a truth-is-stranger-than-fiction twist. The aircraft on which he was killed—a B-17, named *The Duchess*—returned safely from her mission. However, following Jack's death, Lt. Rhude Mathis, a brother of the deceased and a member of the same organization, requested permission to take

JACK W. MATHIS

over its bombsight. Only a month later, he too died at his post on the same ill-fated aircraft.

Lest readers believe that the series has produced nothing but controversy, the editors hasten to point out that a goodly number of happy results also accrued.

For example, in March 1960, we featured the exploit of Lt. Col. James Howard and his one-man war against a swarm of German fighters attacking a formation of B-17s. His P-51, noted by many but known to few, helped the mission to Oschersleben, Germany, succeed despite heavy losses. Colonel Howard scored four victories during this hectic fight.

Soon after the article appeared, the editors received a letter from TSgt. Bartholomew R. Hagan expressing his belated thanks to the man he believes is responsible for saving his life. Hagan was a gunner of one of the B-17s during that raid of January 11, 1944, and had never before been able to determine the identity of this lone fighter pilot.

James Howard, incidentally, is one of the 15 men who lived to tell their tale and is today a brigadier general in the Air Force Reserve.

Finally, the editors hope that much of the confusion which has long obscured the Medal of Honor story has been at least partially erased.

Among these many confusing items has been the assumption that this decoration is officially the "Congressional Medal of Honor." Rather, it is the "Medal of Honor of the United States Army." A companion version, which was the original of the two, is called the "Medal of Honor, the Navy."

The misnomer, Congressional Medal of Honor, has led directly to a great deal of confusion. Many people, for example, are convinced that Gen. Billy Mitchell was so honored. This is not true.

General Mitchell was awarded a "Congressional Medal of Honor" in March 1948 in recognition of his "outstanding pioneer service and foresight in the field of American military aviation." However, as is the case with many others in this same category, this was a medal struck for a specific purpose and not the Medal of Honor we recognize as the nation's ultimate decoration.

As a final tribute from the editors of THE AIRMAN, we hereby present USAF's Roll of Honor and offer a silent "well done" in recognition of 47 comrades, many of whom made the supreme sacrifice in their country's service.

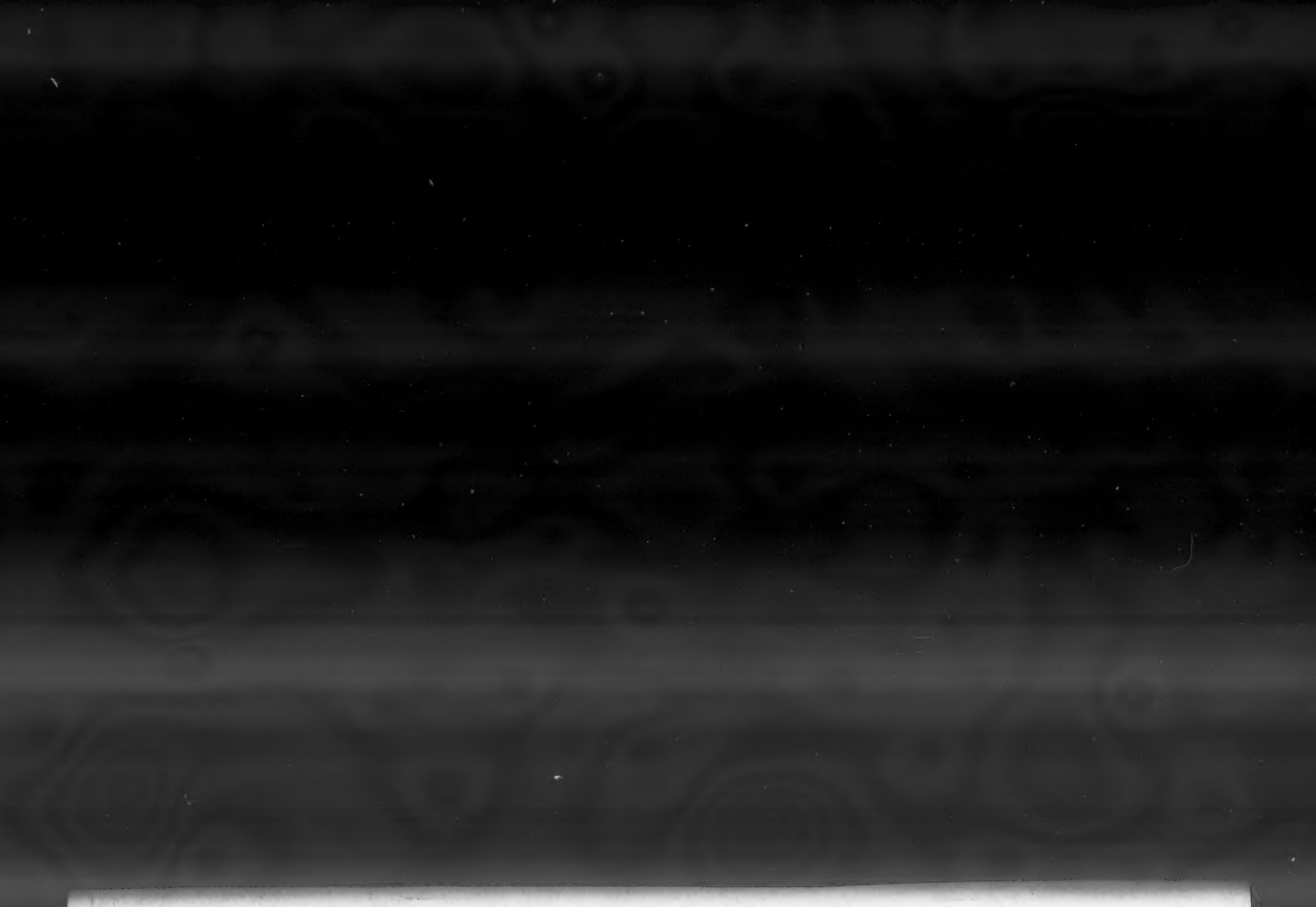
In order of their deeds, and bearing their military rank of the time, we salute:

1st Lt. Edward V. Rickenbacker
2nd Lt. Frank Luke, Jr.*
1st Lt. Harold E. Goettler*
2nd Lt. Erwin R. Bleckley*
Capt. Charles A. Lindbergh
Lt. Col. James H. Doolittle
Capt. Harl Pease*
Col. Demas T. Craw*
Maj. Pierpont M. Hamilton
Brig. Gen. Kenneth N. Walker*
1st Lt. Jack W. Mathis*
Sgt. Maynard H. Smith
Maj. Jay Zeamer, Jr.
2nd Lt. Joseph R. Sarnoski*
F. O. John C. Morgan
Col. Leon W. Johnson
Col. John R. Kane
Lt. Col. Addison E. Baker*
Maj. John L. Jerstad*
2nd Lt. Lloyd H. Hughes*
Maj. Ralph Cheli*
Col. Neel E. Kearby*
Maj. Raymond H. Wilkins*
TSgt. Forrest L. Vosler
Lt. Col. James H. Howard
1st Lt. William R. Lawley
2nd Lt. Walter E. Truemper*
Sgt. Archibald Mathies*
1st Lt. Edward S. Michael
Lt. Col. Leon R. Vance*
2nd Lt. David R. Kingsley*
1st Lt. Donald D. Puckett*
Capt. Darrell Lindsey*
Maj. Horace S. Carswell*
Maj. Richard I. Bong*
2nd Lt. Robert E. Femoyer*
1st Lt. Donald J. Gott*
2nd Lt. William E. Metzger*
Brig. Gen. Frederick W. Castle*
Maj. Thomas B. McGuire*
Maj. William A. Shomo
SSgt. Henry E. Erwin
1st Lt. Raymond L. Knight*
Maj. Louis J. Sebille*
Capt. John A. Walmsley, Jr.*
Maj. George A. Davis, Jr.*
Maj. Charles J. Loring, Jr.*

*Posthumous awards

Air Force Secretary Eugene Zuckert, left, and Army Secretary Elvis Stahr, Jr., look skyward, watching part of 5,000 paratroopers of the 82d Airborne Division float to earth during massive paradrop during Exercise *Swift Strike*, largest U. S. military maneuvers since World War II.

UPI photo

MANNED WEAPON SYSTEMS

on the ground and in the air—MEAN VICTORY